CONTENTS

THE C2 OXIDATIVE PHOTOSYNTHETIC CARBON CYCLE,	
N. E. Tolbert	1
TRANSPORT OF PROTEINS AND NUCLEIC ACIDS THROUGH	
PLASMODESMATA, Soumitra Ghoshroy, Robert Lartey,	
Jinsong Sheng, and Vitaly Citovsky	27
AUXIN BIOSYNTHESIS, Bonnie Bartel	51
THE SYNTHESIS OF THE STARCH GRANULE, A. M. Smith,	
K. Denyer, and C. Martin	67
CHEMICAL CONTROL OF GENE EXPRESSION, C. Gatz	89
REGULATION OF FATTY ACID SYNTHESIS, John B. Ohlrogge	
and Jan G. Jaworski	109
MOLECULAR GENETIC ANALYSIS OF TRICHOME DEVELOPMENT	
IN ARABIDOPSIS, M. David Marks	137
FLUORESCENCE MICROSCOPY OF LIVING PLANT CELLS,	
Simon Gilroy	165
PHLOEM UNLOADING: SIEVE ELEMENT UNLOADING AND	
POST-SIEVE ELEMENT TRANSPORT, J. W. Patrick	191
OXYGEN DEFICIENCY AND ROOT METABOLISM: INJURY AND	
ACCLIMATION UNDER HYPOXIA AND ANOXIA,	
Malcolm C. Drew	223
THE OXIDATIVE BURST IN PLANT DISEASE RESISTANCE,	
Chris Lamb and Richard A. Dixon	251
THE ETHYLENE RESPONSE PATHWAY IN ARABIDOPSIS,	
Joseph J. Kieber	277
PLANT TRANSFORMATION: PROBLEMS AND STRATEGIES FOR	
PRACTICAL APPLICATION, Robert G. Birch	297
CYANOBACTERIAL CIRCADIAN RHYTHMS, Susan S. Golden,	
Masahiro Ishiura, Carl Hirschie Johnson, and Takao Kondo	327

CONTENTS

THE C2 OXIDATIVE PHOTOSYNTHETIC CARBON CYCLE,	
N. E. Tolbert	1
TRANSPORT OF PROTEINS AND NUCLEIC ACIDS THROUGH	
PLASMODESMATA, Soumitra Ghoshroy, Robert Lartey,	
Jinsong Sheng, and Vitaly Citovsky	27
AUXIN BIOSYNTHESIS, Bonnie Bartel	51
THE SYNTHESIS OF THE STARCH GRANULE, A. M. Smith,	
K. Denyer, and C. Martin	67
CHEMICAL CONTROL OF GENE EXPRESSION, C. Gatz	89
REGULATION OF FATTY ACID SYNTHESIS, John B. Ohlrogge	
and Jan G. Jaworski	109
MOLECULAR GENETIC ANALYSIS OF TRICHOME DEVELOPMENT	
IN ARABIDOPSIS, M. David Marks	137
FLUORESCENCE MICROSCOPY OF LIVING PLANT CELLS,	
Simon Gilroy	165
PHLOEM UNLOADING: SIEVE ELEMENT UNLOADING AND	
POST-SIEVE ELEMENT TRANSPORT, J. W. Patrick	191
OXYGEN DEFICIENCY AND ROOT METABOLISM: INJURY AND	
ACCLIMATION UNDER HYPOXIA AND ANOXIA,	
Malcolm C. Drew	223
THE OXIDATIVE BURST IN PLANT DISEASE RESISTANCE,	
Chris Lamb and Richard A. Dixon	251
THE ETHYLENE RESPONSE PATHWAY IN ARABIDOPSIS,	
Joseph J. Kieber	277
PLANT TRANSFORMATION: PROBLEMS AND STRATEGIES FOR	
PRACTICAL APPLICATION, Robert G. Birch	297
CYANOBACTERIAL CIRCADIAN RHYTHMS, Susan S. Golden,	
Masahiro Ishiura, Carl Hirschie Johnson, and Takao Kondo	327

BIOSYNTHESIS AND ACTION OF JASMONATES IN PLANTS,	
Robert A. Creelman and John E. Mullet	355
PLANT IN VITRO TRANSCRIPTION SYSTEMS, Masahiro Sugiura	383
AQUAPORINS AND WATER PERMEABILITY OF PLANT	
MEMBRANES, Christophe Maurel	399
GIBBERELLIN BIOSYNTHESIS: ENZYMES, GENES, AND THEIR	
REGULATION, Peter Hedden and Yuji Kamiya	431
POLLEN GERMINATION AND TUBE GROWTH, Loverine P. Taylor	
and Peter K. Hepler	461
METABOLIC TRANSPORT ACROSS SYMBIOTIC MEMBRANES OF	
LEGUME NODULES, Michael K. Udvardi and David A. Day	493
PROGRAMMED CELL DEATH IN PLANT-PATHOGEN	
INTERACTIONS, Jean T. Greenberg	525
POLLINATION REGULATION OF FLOWER DEVELOPMENT,	
Sharman D. O'Neill	547
PLANT DISEASE RESISTANCE GENES, Kim E. Hammond-Kosack	
and Jonathan D. G. Jones	573
MORE EFFICIENT PLANTS: A CONSEQUENCE OF RISING	
ATMOSPHERIC CO2?, Burt G. Drake, Miquel A. Gonzàlez-Meler,	
and Steve P. Long	607
STRUCTURE AND MEMBRANE ORGANIZATION OF PHOTOSYSTEM II	
FROM GREEN PLANTS, Ben Hankamer, James Barber,	
and Egbert J. Boekema	641
GENETICS OF ANGIOSPERM SHOOT APICAL MERISTEM	
DEVELOPMENT, Matthew M. S. Evans and	
M. Katherine Barton	673
ALTERNATIVE OXIDASE: FROM GENE TO FUNCTION,	
Greg C. Vanlerberghe and Lee McIntosh	703
INDEXES	
Author Index	735
Subject Index	771
Cumulative Author Index	808
Cumulative Title Index	811



A

Aach H, 437 Aalen R. 69 Aarts MGM, 465, 466 Abe H. 437, 447, 452, 557 Abeles FB, 278, 282, 285, 289 Abo A. 255 Abrami L, 414 Abu-Abied M. 309 Acedo GH, 413, 416 Ackerman S. 385, 387-89 Ackerson RC, 615 Acres RB, 582, 591, 592 Adam A, 264 Adams DO, 557 Adams SR, 170, 179, 183, 184 Adams WW III, 371 Adir N. 652 Adkins S, 236, 237 Adler H-T, 685, 687, 688 Aebersold R. 646 Affolter M. 681 Afif D. 615 Agapova LP, 227 Agard DA, 172 Agostino A, 726 Agrawal P, 122 Agre P. 400, 408-12, 417, 418, 423 Agrios GN, 577, 583, 602 Ait-Ali T. 436, 438, 452 Aitken CJ, 318 Ajovi W. 706 Akabori K, 647 Akamine EK, 550, 551 Akerlund HE, 715 Akey CW, 39 Akin DE, 227 Akita S, 612 Alban C. 113 Albert F, 261, 263, 264 Albert H. 312 Albertsen MC, 467, 689 Albertsson PA, 648-50, 652, 665 Albone KS, 445, 446, 452 Albrecht A-M, 404, 407, 416 Albrecht G, 227, 236 Albrecht T, 358-60, 363, 367, Albright LM, 503 Albuquerque MC, 233 Alcayaga C, 409

Aldrich HC, 227 Alessi D, 287 Alexander D. 530 Alexander NJ, 707 Alexandrova NM, 45 Alexciev K, 719 Alfano JR, 529, 579 Alfenito M. 266 Alfenito MR, 266 Al-Jobore A, 497 Allakhverdiev SI, 614 Allan AC, 170, 184, 473 Allan WTG, 169, 178 Allard S. 475 Allaway WG, 241 Allen CF, 648 Allen JF, 652, 719, 720 Allen LH, 612, 615 Allen NK, 316 Allen RD, 719, 720 Allen RL, 481, 483 Alliote T, 540 Aloni B, 209, 210 Alonso WR, 437, 438 Alpi A, 230, 231 Altman A, 299 Altmann T, 685, 691 Alvarez J, 688 Alvarez ME, 252, 254, 262, 264, 531, 534, 537 Alvarez O, 409 Amano E, 79, 80 Amati S, 366 Ambudkar SV, 408, 409, 415 Ammerlaan A, 209, 211 Amos B, 177, 182, 183 Amrhein N. 281 Amselem J, 408 Amsterdam A, 183 Amthor JS, 623, 624 Amuti K. 94 An G. 96 An GH, 311, 366, 367, 372, An KS, 311 Andersen RA, 372 Anderson A, 261, 263, 264 Anderson IC, 233 Anderson JD, 557 Anderson JM, 369, 648, 649 Anderson KV, 582, 591, 593 Anderson L. 115 Anderson MA, 475 Anderson MD, 262

Anderson PA, 598, 599 Anderson PC, 316 Andersson B. 647-49 Andersson CR, 342-44 Andrade FH, 233 André M. 615 Andreev VY, 227 Andreeva IN, 227 Andrews CJ, 226 Andrews DL, 225, 233, 234, 237, 238, 240 Andrews JT, 627 Andrews TJ, 616 Angell SM, 36 Anraku Y. 706 Anthon GE, 497 Antoniw JF, 91-93 Antosiewicz DM, 359 Aoki S. 335, 346 Aoyama H. 625 Aoyama T, 100 Apel K. 367, 372 Apelbaum A, 281 Apostol I, 254, 255, 261 Apostolova EL, 650 Appeldoorn N, 483 Appels MA, 508 Appleby CA, 239, 500, 501. 512-14 Appleford NEJ, 438, 443, 448, 449, 452 ap Rees T, 68, 70, 71, 198, 230, 232 Arai T, 331, 346, 347 Arai Y. 78 Aranda X, 626 Arditti J, 550, 551, 556, 559, 560 Ardley J. 317 Arends S. 394 Argan CA, 706, 708, 718, 719 Argiles JM, 624, 625, 726 Arias A, 498, 499 Arias JA, 391, 392 Armellini D, 230 Armitage P. 299 Armond PA, 648, 649 Armstrong C, 310 Armstrong W, 224-27, 230, 231, 235-37, 241, 242 Arndt KT, 152 Arnone A III, 615 Arntzen CJ, 301, 648, 649

Anderson OD, 307

Arp WJ, 612, 613, 615, 617, 627 Arwas R. 497-99 Asada K. 663 Asamizu E. 335, 346 Aschoff J. 329 Asen S, 552 Ashfield T. 580, 586, 589, 594. 597, 599 Ashford AE, 241 Ashley CC, 180 Ashton ME, 554, 555 Assadgarcia N. 309 Asselin A. 91 Assmann SM, 170 Astot C, 54 Astrom H. 472 Astwood JD, 467 Atabekov JG, 33, 45 Atkins CA, 207, 502, 511 Atkins D, 183 Atkinson MM, 254, 259, 531 Atwell BJ, 205, 207, 209, 215, 232, 240, 241 Atzorn R. 359, 365 Auh C-K, 257, 531, 535 Aussenac G, 615 Ausubel FM, 252, 263, 266, 301, 364, 436, 503, 504, 530, 531, 533, 534, 541, 576, 579, 580, 586, 589, 595, 597, 599, 602 Avdiushko S, 367, 372 Avigne WT, 201 Avruch J. 287 Ayad NG, 588 Ayliffe MA, 582, 586, 599 Azaizeh H. 416, 420 Azcón-Bieto J, 623-26, 715, 726

B

Baazzaz FA, 612 Baba T. 77, 78 Babb KH, 450 Babcock GT, 646, 647 Babior BM, 255, 257, 260 Babiychuk E, 262, 266 Bachmair A, 265, 541 Bachman K. 138 Bacic A, 463, 475 Bacskai BJ, 170, 179 Badelt K. 29 Badger MR, 612, 615, 618. 619, 709, 711 Badminton MN, 180 Bae K. 349 Baerson SR, 128 Baeuerle PA, 39, 40, 592, 720 Bafor M, 123, 362

Bagnell DJ, 452 Bahr JT, 704, 707 Bai BH, 120 Bai L. 410-12, 417 Baier K. 198, 199, 209 Bailey-Serres J. 236-38, 240 Baillieul F. 531 Bainbridge G, 616, 618 Baird PT, 264 Baker B, 582, 586, 596, 598 Baker BF, 311 Baker BJ, 252, 301, 530, 576, 599, 602 Baker CJ, 252, 254, 259, 262, 264, 531, 535, 536 Baker DA, 41, 194, 201 Baker JC, 254, 263 Baker JT, 612, 615 Baker L, 30, 38, 39, 41, 43, 167, 696 Baker NR. 617 Balázs E. 384, 390 Bald D, 646, 650, 651, 653, 654, 659, 661, 664 Baldari CT, 591, 592 Baldet P, 113 Baldi BG, 55 Baldwin IT, 356, 360, 363, 374 Baldwin M. 646 Baldwin TC, 475 Balint-Kurti PJ, 585, 586, 597. 598 Ball S. 71, 79 Ball TJ, 623, 624 Ballicora MA, 71 Ballvora A, 587, 594 Balshüsemann D, 62 Baltimore B, 646, 650 Baltimore D. 40 Baluda MA, 152 Banas A. 362 Bandurski RS, 52-54, 60, 61. 200 Bantroch DJ, 359, 367 Barakate A, 479, 481, 483 Baranov SV, 614 Baranowskij N, 152 Barbato R, 662-64 BARBER J, 641-71; 646, 650, 653, 654, 656, 658, 659, 661, 662, 664 Barber LM, 76 Barbier IG, 646 Barbier-Brygoo H, 240 Barclay HM, 230 Barczak AJ, 55, 57 Bardin S, 498, 499 Barendse GWM, 559 Bargiello TA, 329 Barker H. 36 Barker SJ, 584, 595

Barkla BJ, 258 Barks AH, 316 Barlow EWR, 612, 615, 627 Baron C. 93 Baron-Eppel O, 30 Barr M. 288 Barrett DJ, 612, 615 Barry GF, 71, 72, 122 Barsomian GD, 498 Bartalesi A, 472 BARTEL B, 51-66; 53, 59, 61, 62 Barthels N. 540 Bartley GE, 439 Bartling D, 53, 59 Barton DL, 124, 127 BARTON MK, 673-701: 58. 677, 678, 681, 684, 685, 688, 689, 691 Basche D. 479 Bashaw EC, 555 Bashe D. 479 Bashe DM, 481 Bassarab S. 510 Basse CW, 557 Bassi R, 646, 653, 656, 665 Bastianutto C, 180 Bate NJ, 526 Bathe JH, 307 Battev NH, 470 Batut J. 503 Bauch L, 687 Baudinette SC, 562 Bauer DW, 529, 579 Bauerle PA, 262, 264, 265 Baulcombe DC, 36, 182, 183. 584, 596 Baumel P, 192 Bauw G, 62, 263 Baxter G, 166, 167, 176 Baxter R, 624 Bazzaz FA, 610, 612, 615 Beachy RN, 29, 30, 32-35, 42, 43, 45, 182, 183, 301, 533, 578, 582 Beal FD, 450 Beale MH, 170, 184, 441, 444 Beasley CA, 554, 555 Bechtold N, 302, 313 Beck E, 2, 7, 12, 18, 21 Beck KF, 130 Beck TW, 286 Becker D, 152, 313 Becker F, 265, 541 Becker W. 367, 372 Beckett PM, 225 Beckhove U. 92, 104, 538 Becraft PW, 593, 685, 690, 695 Bedinger PA, 474, 477-79. 481, 482 Bednarek SY, 62

Black R, 57, 280, 289

Beeckman T. 57 Beer K. 260 Beerling DJ, 613 Beers EP. 79 Beeson RCJ, 615 Beffa R, 259 Beffagna N. 228 Begonia GB, 612, 615 Behringer FJ, 675-77 Beier D, 394 Beier H. 387, 394 Beilmann A, 91, 92 Beinsberger S. 690 Beland GL, 311 Bell CI, 199, 209, 212, 214 Bell CJ, 688 Bell E, 363, 364, 366, 367, 371 Bell RM, 287 Bellanger F. 77 Bellesboix E. 266 Bellini C. 58 Belostotsky DA, 480, 481 Benbow RM, 309 Bender G. 102 Bendich AJ, 704 Bendix M, 241 Benedetti CE, 366, 367, 372 Benediktsson I, 308, 309 Benemann JR, 331 Benfey PN, 91, 311 Benhamou N. 93 Benichou P. 718 Benker C, 2, 7, 12, 18, 21 Benndorf K, 240 Bennett AB, 201, 210 Bennett J, 311 Bennett MH, 264, 534 Bennett MJ, 502 Bennett RN, 356 Bennett SRM, 688 Bennett V, 40 Bennetzen JL, 540, 598 Bensen RJ, 435, 436, 438 Bent AF, 279, 527, 576, 580. 586, 589, 591 Benvon JL, 532 Benzer S, 329 Berczi A, 727 Berens C. 98 Berg S. 281 Bergelson S. 262 Berger F. 169 Berger J. 678, 685, 691, 692 Berger S, 366, 367, 371 Bergersen FJ, 225, 496-98, 500-2, 504, 511 Bergey DR, 96, 366 Bergman Y, 312 Berhane K, 265

Berkers PA, 559

Berleth T. 679, 680, 684, 688

Berna A. 33, 36 Bernard MP, 588 Berndt WB, 497, 499-501 Bernhardi JJ, 28 Bernhardt G, 209, 210 Bernier G, 687 Berry AW, 280 Berry JA, 715, 721, 722, 726-28 Berryman CA, 612, 615 Bertani A. 230-32 Berthold DA, 707 Berthonaud V. 414 Bertrand H, 706, 708, 718, 719 Besford RT, 615, 620, 624 Bestwick CS, 264, 534 Betsche T. 615, 618 Betzner AS, 696 Beug H. 152 Beugeling E, 627 Beuwly P. 259 Bevan MW, 91 Bewley JD, 77, 78, 226 Bewly MC, 653, 656, 658 Bever EM Jr. 281 Beyers RS, 130 Beyreuther K, 662 Bhatia A. 551, 564 Bhatnagar AK, 552 Bhattacharyya MK, 77, 78 Bhuvanasvari TV, 498, 499 Bi YM. 267 Bialek K, 54, 61 Bialek KH, 61 Bickett DM, 704 Biddle P, 288 Bidney D. 309 Biesalski HK, 152 Biggs S, 648 Bin X, 152 Binder B, 346, 347 Bingham GE, 612 Bingham IJ, 726 Binns AN, 690 Birch N. 138 BIRCH RG. 297-326: 299. 300, 302, 305-10, 312, 313 Birkenhead K, 499 Bisaro DM, 46 Bisbal EC, 615 Bishai WR, 408 Bishop J, 154 Bishop JM, 152 Bishop PE, 504 Bissinger PH, 55, 56 Biswas AK, 169 Biwersi J. 411 Björklund G, 592 Bjorkman O, 615 Black M, 226 Black MT, 663

Blackbourn HD, 469, 470 Blackwell J, 54 Blake PS, 367 Blanke MM, 207 Blankenship SM, 281, 285 Blatt MR, 176, 184 Blechert S. 264, 265, 360 Blechl AE, 307 Bleé E, 363-65 Bleecker AB, 57, 278, 279, 281, 283-85, 289, 444, 527 Bleibaum J. 124 Blein J-P. 254, 259, 261, 264 Blevins WE, 540 Bligny R, 228 Blobel G, 40, 41 Bloch G, 116 Bloemendal H, 289 Bloksberg L. 71 Blount J. 265 Blumwald E, 254, 258, 509 Blundell TL, 647 Boardman NK, 648 Boddupalli SS, 122, 124 Bodenstein-Lang J, 716 Boehle J. 94 BOEKEMA EJ, 641-71; 646, 650, 651, 653, 654, 656, 659, 661, 664 Boerjan W. 57 Boesten B, 499 Böger H, 104 Bogorad L., 663 Bogracheva TY, 83 Bogucki A, 309 Bogusz D, 239 Bohnert HJ, 408, 409, 413, 416, 419 Boistard P. 503 Bokel M. 467 Bokoch GM, 255, 256 Bol JF, 91-93, 95 Bolchi A, 266 Boller T, 258, 557, 602 Bolles C. 235 Bolton E, 498, 499 Bolwell GP, 255, 257 Bomsel JL, 227 Bonas U. 579 Bonig I, 474, 475 Bonin AL, 99 Bonnemain J-L, 202, 213 Bonner BA, 438, 450 Bonner TI, 286 Bonner WD, 704, 707 Bonnert TP, 582, 591, 592 Bonnlander MB, 696 Bonventre JV, 287 Booij H. 363 Boom AJ, 623, 624

Boote KJ, 612, 615 Borgese MB, 332, 346 Borisiuk L, 68, 69, 71, 210, 211 Borisy GG, 240 Borochov A. 548, 550, 551. 561 Borovsky D, 80 Borsting C, 119 Borstlap AC, 211, 212 Böse G, 437 Bosma G, 706 Boss WF, 172 Bosslinger G, 688 Bostock RM, 264, 367, 372, 528, 534 Boston RS, 384 Bostwick DE, 38 Botha AM, 226 Botha FC, 226 Botha L. 561 Botham PA, 121, 123 Botock RM, 243 Botterman J. 94, 299 Bottini R, 445 Bouche-Pillon S, 30, 38, 39, 41, 43, 167, 202, 210, 696 Bouchez D, 58, 262 Boulter D, 299, 301, 384 Bouma TJ, 626 Bouman F, 552, 553 Bounoua L. 629 Bouny JM, 227, 235, 237 Bourque JE, 300 Bourquin S. 213 Boussac A, 646 Boutin J-P. 209 Bouwer R, 688 Boveris A, 720 Bowen B, 152, 300, 310 Bower R, 299, 300, 302, 305, 308-10, 312, 313 Bowes G, 610, 612, 615, 616, 618, 624 Bowlby NR, 656, 659, 661 Bowler C. 184, 540 Bowley SR, 138 Bowman C, 311 Bown D, 384 Bowra S, 129 Boyer CD, 70, 77 Boyer JS, 400, 402, 419, 421 Boyer N. 416 Boyle MG, 615 Boynton JE, 708 Braam J. 359 Bradford KJ, 560 Bradley DJ, 260, 362, 530 Bradley R, 124 Brady CJ, 201, 210, 211, 549 Brady JD, 260 Brain APR, 650

Brambilla 1, 230-32 Brand A, 182, 183 Brander KA, 463, 480, 481 Brandes C, 337 Brändle R, 226, 227, 230, 231, 235, 238, 239 Brandner J, 198, 210 Brandt AS, 564 Brash AR, 359, 364, 365 Braster M. 706 Brauer D. 169 Braun DM, 583, 587, 593 Bravo-Angel A-M, 308 Brederode FT, 91, 92 Breeuwer M, 39 Breitkreuz KE, 231, 232 Bremer DJ, 612, 613, 615, 628 Brenner ML, 453 Bressan RA, 258, 530, 537, 593, 596 Bret-Harte MS, 198, 203 Brewin NJ, 496, 510 Brewster JL, 291 Bricker TM, 646, 662, 664 Briggs MJ, 496 Briggs SP, 263, 266, 436, 528, 541, 577, 586, 601, 689 Bright SWJ, 95 Brini M, 180, 182, 183 Brisson LF, 257, 258, 260, 261, 263, 266, 530 Brisson N, 53 Britt RD, 646, 647 Britton JH, 57, 687 Brix H, 241 Broadwater AH, 477 Brodschelm W, 264, 265, 357, 358, 360 Broekman RA, 612 Broglie KE, 288 Broglie R. 288 Brommonschenkel SH, 530, 583, 584, 586, 591, 597, 598 Bron P. 408 Brooks A. 616 Broughton WJ, 503 Broun P. 126 Brouns GS, 481 Brown AW, 231, 232 Brown CM, 504 Brown EN, 329 Brown GC, 372 Brown KL, 580, 586, 589, 591 Brown SC, 201 Brown SM, 192, 200, 559 Browning KS, 237 Brownlee C, 169, 170 Browse J, 110-12, 115, 117, 123, 128, 361, 365, 367, 372, 373 Browse JA, 362

Bruce B. 311 Bruck FM, 121 Bruckner C. 359, 367 Bruegger B, 533 Brummel H, 121 Brunold C, 94 Bruskova RK, 501, 506 Bruun L. 474, 475, 477 Bruzan F. 225 Bryant JD, 307 Brydolf B, 152 Bubrick P. 45 Buch A, 716 Buchanan BB, 722 Bucher M, 230, 231, 238, 239, 463 Buchner P, 210, 211 Buck KW, 33 Buczko E. 589 Buell CR, 526 Bufler G, 550, 561 Buggeln RG, 707 Bugnoli M. 230 Bui A. 563, 566 Bui AQ, 549, 557, 558, 561 Buikema WJ, 503 Buising CM, 309 Buitink J. 464 Bujard H, 91, 99, 101, 102 Bullivant S. 501, 509 Bunce JA, 615, 623, 624, 626 Bunker TW, 367, 369, 370 Bünning E, 282, 329, 332, Burbulis IE, 468 Bureau J-M. 551 Burg SP, 550, 557, 559, 560 Burgess RR, 387 Bürglin T, 681 Burglin TR, 40 Buris RH, 497 Burke C. 389 Burkhart W, 172, 258, 261 Burn JE, 452 Burr B. 152 Burr FA, 152 Burrus M. 308, 309 Burton RA, 76-78 Buschfeld E, 265, 541 Bush DR, 195, 211 Bush DS, 167, 169, 176, 208, 240 Buss JE, 311 Busscher J, 467 Busscher M, 688 Buti VS, 255, 257 Büttner M. 262 Button D. 180 Buttrose MS, 74 Buzzell RI, 599 Byrd GT, 624

C

Caboche M. 58, 408 Cadenas E. 720 Cadepond F. 40 Cahi HB, 539 Cahoon EB, 125 Cai G. 470, 472 Cai H, 589 Cai ST, 469 Cai Y. 339 Caková V. 479 Calamita G. 408 Caldelari D. 360, 365, 367 Callaghan TV, 610 Callaham DA, 169, 180, 470, 472, 473, 477 Callaway RM, 615 Callis J, 227, 228, 234, 237, Callos JD, 675-77 Calvavrac R. 718 Cameron RE, 72, 74 Cameron RK, 538, 540 Cameron-Mills V, 367, 372 Camp PJ, 114 Campbell AK, 180 Campbell D. 287 Campbell JS, 287 Campbell PH, 180 Campbell RK, 588 Campbell WJ, 612, 615 Canary D, 555, 559 Canioni P. 232 Cantu CA, 232 Canvin D. 122 Cao H. 70 Cao J. 300, 305 Cao S. 331, 346, 347 Cao Y-Z, 123 Cao ZD, 583, 591 Caplan AB, 263 Carabelli M, 100 Carcamo R, 310 Carceller MS, 416 Cardini CE, 82 Cariven C, 362 Carland FM, 584, 595 Carlson RW, 612 Carlson TA, 503 Carlsson K, 552 Carozzi N, 92 Carozzi NB, 311, 314 Carpenter EJ, 348 Carpenter JL, 481 Carpenter R, 154 Carpita NC, 474, 477 Carr RJ, 33 Carrayol E, 481 Carré IA, 329, 341, 349 Carrer H, 299, 311

Carrington WA, 172 Carroll TP, 408, 412 Carter MB, 505 Caruso JL, 678, 679, 681, 682 Carvajal M, 416, 420, 423 Carystinos GD, 232 Caskey CT, 317 Caspar T. 158 Casselman AL, 56 Cattaruzza L. 228, 231 Caumont C, 362 Cavallius J. 172 Cave G. 615 Cecchi X, 409 Cedar H, 312 Cedergren E, 646 Celenza JL, 57, 60, 62 Century KS, 533, 595, 602 Cervenansky C, 498, 499 Cervera M-T, 57 Cerwick S. 718, 726 Chabaud R, 646 Chadwick AV, 281, 550, 551. Chae HZ, 505, 506 Chae Q. 184 Chaerle L. 707 Chalfie M. 180, 182, 183 Chaloner WG, 613 Chamberlain S. 615 Chamberlain SH, 716 Chamnongpol S, 267 Chamovitz D, 436 Chan Y-K, 499, 500, 505 Chandler SF, 562 Chandra S, 255, 259, 362 Chang A-M, 329 Chang C, 278, 283, 285 Chang JH, 584, 589, 595 Chang K, 237 Chang M-T, 71, 76, 77 Chang PFL, 367, 372, 373 Chang SS, 302 Chao G, 262 Chapin FS III, 610, 612 Chapleo S, 198 Chaplin AE, 331 Chapman DJ, 646, 662 Chapman KA, 503 Chapman S, 182, 183 Chappell J, 384, 385, 392, 434, 437, 438 Charles IG, 588 Charles TC, 498, 499 Chaubal R. 554 Chaudhry B, 367, 372 Chaudhuri M. 706 Chaudhury AM, 693, 694 Chaumont F, 411, 413, 416 Chelm BK, 503 Chen F. 474, 477

Chen H-M. 345 Chen JJ, 615 Chen KH, 61 Chen L-L, 258, 586, 587, 598 Chen QHG, 285 Chen T-H, 330, 333, 345 Chen T-L, 330, 333 Chen W. 262 Chen XM, 612, 615 Chen Z-X, 262, 267, 536, 596 Cheng C-L, 182, 183, 413, 416 Chersi A, 231 Cheung AY, 474, 476, 480 Chiang HH, 446, 447, 449, 452 Chiapello H, 408 Chiariello NR, 612 Child D. 169 Childs KL, 450 Chin TY, 550 Chine JFS, 610 Chino M, 37, 45 Chirala SS, 125, 130 Chiu W-L, 182, 183 Cho SH, 123 Choe H-R, 589 Choi D. 367, 372, 582, 586, 598 Choi HK, 311 Choi J-K, 113, 130 Choi JL, 366 Choi S-H, 579, 587 Chollar S, 646, 650 Chou W-M. 333 Choudhary AD, 94 Chourey PS, 237 Chow H, 696 Chow M. 311 Chow T-J, 332, 333 Chow WS, 612, 615 Chow Y-H, 287 Chrispeels MJ, 400, 407-17, 419, 421 Christey MC, 302, 313 Christiansen AH, 317 Christiansen JH, 502 Christianson ML, 152, 677 Christou P, 299, 302, 305, 307, 308, 310, 312, 313 Chu AM, 158 Chu C, 716 Chua N-H, 91, 184, 311, 329, 334, 349, 366, 390 Chuck G, 690 Chung YY, 471 Chunwongse J, 530, 583, 584, 586, 591, 597, 598 Ciacci-Zanella J, 528 Ciais P. 610 CITOVSKY V, 27-49; 29, 30, 32, 33, 35, 41, 42, 45 Claisse M. 718 Clark D. 562

Clark LH, 226 Clark PJ, 142 Clark SE, 682, 685, 691-94 Clarke AE, 301, 463, 474, 475 Clarke B, 77, 82 Clarke MC, 314 Clarke SD, 707 Clarkson DT, 416, 420, 423 Clay HA, 367 Clayton C, 102 Cleland RE, 205, 207, 225, 240 Clémencet M-C, 407, 421 Clements JD, 301 Cleveland JL, 286 Cleveland TE, 96 Clouse SD, 528 Cobb BG, 72, 225, 227, 233, 234, 237, 238, 240 Cocciolone SM, 152 Cody CW, 181 Coe EH. 152, 467 Coen E, 152, 154 Coffee RA, 316 Coffey MJ, 254, 257, 263 Cohen JD, 52-56, 58-61 Cohen O. 687 Cohen P, 287 Cohen Y. 91, 367, 372 Cohen-Bazire G. 331 Colby SM, 437, 438 Coleman A. 141 Coleman JOD, 465 Coleman JS, 615 Coleman M. 583 Coles JP, 444 Collatz GJ, 629 Collier JD, 94 Collinge DB, 258, 262 Collinge MA, 593 Collings DA, 172 Collins GB, 299, 301, 372 Collmer A, 263, 529, 531, 533, Colmer TD, 227, 233, 237 Colonna P, 78 Comai L, 91, 685, 687, 688 Combe L. 615 Compan I, 239 Conconi A, 360, 362, 367, 373 Condeelis J, 172 Cone KC, 54, 152 Conkling MA, 413, 416, 422 Conley CA, 718, 721 Conner AJ, 302, 313 Conner RL, 332 Connor KF, 463, 465 Conrads-Strauch J, 579 Conrath U, 267 Conroy J, 615 Conroy JP, 612, 615, 627 Contard P, 618

Cooke DT, 416, 420, 423 Cooke R, 390 Cooke S. 100 Cooke TJ, 54, 58, 60 Cookson C, 497 Coolbaugh RC, 439 Coombe BG, 201, 207, 445 Coombs J, 497 Cooney TP, 52, 54, 58 Cooper GM, 286 Cooper JA, 469 Copeland L, 496, 497, 500 Copeland TD, 287 Corbett AH, 40 Corbin DR, 261 Corbineau F. 226 Cordes S. 527 Cordonnier-Pratt MM, 450 Cork RJ, 169 Cork SJ, 628 Corlett JE, 98, 99 Cormack R, 282 Cormier MJ, 180, 181 Cornic G, 624 Corr C, 582, 586, 598 Coruzzi G, 301 Cosgrove DJ, 199, 205, 206, 209, 406, 421 Cossins EA, 236 Costa MA, 311, 366 Costacurta A. 52, 53, 58 Côté F. 91, 615 Cotter TG, 264 Cotts RM, 402, 406 Couée I. 224, 230, 236, 237 Coursin T. 331 Covey SN, 387 Cowles S, 622, 628 Coyne Pl, 612, 613, 615, 628 Cozijnsen TJ, 585 Crabtree B. 118 Craig S, 693, 694 Cramer WA, 663 Crane VC, 436, 438 Cranmer AM, 124, 126 Crawford LA, 231, 232 Crawford NA, 722 Crawford RMM, 230, 231, 235 Creach A. 120 Creasy LL, 552 Creech RG, 82 CREELMAN RA, 355-81; 358, 359, 363, 364, 367-70, Crenshaw R, 311 Cressman R, 288 Cresti M, 464, 468-70, 472, 474, 475, 477 Cretin C, 722 Cringle S, 225 Critchfield WB, 468

Crocker W. 278 Croes AF, 463, 464 Croft KPC, 258, 372, 533, 537 Croker SJ, 447, 448, 452 Crombie B, 502, 510, 511 Cronan JE, 124 Crossland L, 479, 481, 482 Croteau R. 437, 438 Crouch ML, 559 Crowder AA, 226 Crowe JH, 463, 464 Crowe LM, 463, 464 Croy RRD, 384 Crozier A, 60, 441 Crute IR, 532, 576, 578, 579. 597, 602 Cruz-Hernandez A, 709, 711, 713, 718, 721 Cubitt AB, 182 Culianez-Macia F, 152 Cullimore IV, 495, 502 Culver JN, 578 Cummings A. 389 Cure JD, 612 Curran T, 262 Curtis JT, 552, 555, 559 Curtis PS, 611, 612, 615, 617, 618, 626, 627 Cushman RA, 649 Cutt JR. 91-93 Cyr RJ, 170, 172 Czapski J. 367, 371 Czeisler CA, 329 Czygan F-C, 192

D

Dabi T. 392 Daguenet A, 615 Daguzan C, 180 Dahlbeck D, 580, 586, 589, 591 Daie J. 210, 211 Dainese P, 646, 664, 665 Dainty J. 400, 403-5, 415, 418 Dale EC, 310, 312 Dale PJ, 298, 314, 315 Dali N. 201 Damm B, 308 Dammann C. 366 Damon S, 201, 210 Dancer JE, 232 Dangl JL, 263, 266, 531, 533, 534, 536, 540, 541, 578, 579, 582, 595, 601 Daniel V. 262 Daniels MJ, 409, 411, 413, 416, 583 Dann R. 119 Dannenhoffer JM, 38 Danon A. 720 Danthine X, 311

Darby R, 267 Dasgupta R, 708, 726 Dathe W. 359, 367 Daubert S. 91 Daum G. 286, 287 Davey MR, 299 Davidson OW, 550 Davies C, 36 Davies DD, 237 Davies DR, 255, 257 Davies HM, 115, 124 Davies JM, 232 Davies NW, 435 Davies SP, 483 Davies TGE, 169 Davies WJ, 627 Davis D. 254, 261 Davis EA, 385, 387-89 Davis KR, 46, 92, 262, 364, 531, 540 Davis RW, 100, 130, 143, 153, 154, 288, 359, 463, 465, 466 Davis TD, 615 Davydova NI, 83 Dawe RK, 237, 240 Dawson JH, 192, 203, 314 Dawson WO, 45 DAY DA, 493-523; 225, 496, 499-513, 516 Day PR, 577, 579, 597 Dazlich DA, 629 Dazzo FB, 498 Dean C. 145, 154 Dean DA, 311 Dearman J. 200 Debet M. 75-77 DeBiasio RL, 166, 167, 176. 178.179 De Block M, 298, 303, 309-11 de Boer G-J, 129 Deboo GB, 467 de Bottini GA, 445 De Brouwer D, 309, 310 de Bruijn FJ, 498, 503, 504 de Bruxelle G, 241 de Bruxelles GL, 239 deCandolle AP, 328 de Carolis E, 440 Decker JP, 624 Decottignies P, 722 Decq A, 71, 75, 77, 79, 83 Deen PMT, 404, 408, 410, 414, 423 De Fekete MAR, 82 Defives C, 497 Defranco AL, 593 de Gier JWL, 706 DeGiorgi F, 182, 183 Deiber A, 77 Deisenhofer J, 582, 588, 646, 647, 652, 662

de Jong A. 211 de Jong MD, 411 de Jong WW, 289 de Jongh AMM, 435, 436 Dekker JP, 646, 653, 656, 659, 661 De Kock MJ, 626 Delagrave S. 182 Delahaye-Brown A-M, 329 de Lamarck JB, 707 Delaney KR, 176, 177 Delaney T, 91, 538 Delaney TP, 263, 267, 530, 531, 534, 540, 541 Delannay X, 301 de la Roche IA, 127 Delarue M. 57 Del Casino C. 472 Delgado E, 616 Dellaert SWM, 142, 143, 146, 149 Dellaporta SL, 154 Delmer D. 149 De Loose M, 311, 540 Delrue B, 71, 75, 77, 83 De Luca V, 53, 440 DeLucia EH, 615 deMairan JJ, 328 Demangeat G, 36, 166 de Mercoyrol L. 389 Demmig-Adams B. 371, 646 Dempster JA, 404, 408, 410, 411 De Munk W, 282 Denarie J. 496 Denby KJ, 130 den Dulk-Ras A. 312 Deng W, 372 Deng X, 305, 318 Deng X-W, 157, 158 Denison F. 226 Denk W, 176, 177 Dennis D, 122 Dennis ES, 238, 239, 452, 693, 694 Denome SA, 340 Dent P, 287 DENYER K, 67-87; 69-72, 75-77, 81, 82 Deom CM, 29, 30, 32, 33, 35, 43, 45, 533 Depicker A, 311 Der CJ, 311 Derbyshire MK, 61 Derieux JC, 497, 499, 500 Derksen J, 468, 469 De Robertis EM, 40 De Rooy M, 282 Derrick PM, 36 Desai N. 314

De Sambianx GW, 367, 372,

Desikan R, 254, 257, 263 de Silva J. 128 Desnos T, 154 De Sonville A. 310 Desprez T, 408 Deurs BV, 124 de Valoir T, 291 de Vetten NC, 238, 239 De Visser R. 626 de Vitry C, 646 Devlin PF, 450 Devlin WS, 261 de Vries GE, 497, 500 De Vries SC, 363 DeWald DB, 366, 367, 369, 374 Dewey FM, 465 Dewey M. 169 de Win AHN, 468, 469 de Winde JH, 727 DeWit M, 650, 653, 662 de Wit PJGM, 585 DeWitt ND, 210 Dewitte W, 57 Dewulf J. 299 Dhindsa RS, 232 D'Hulst C, 77 Dick PS, 198 Dickinson C, 409, 413 Dickinson DB, 463 Dickinson HG, 422, 464-66, 479 Dickman MB, 528 Didehvar F, 41, 201 Diehl RE, 363 Diekmann E. 255 Diemer MW, 612, 615, 628 Diethelm R, 718 Dietrich A. 258, 266 Dietrich MA, 42 Dietrich RA, 263, 266, 531, 534, 536, 540, 541, 601 Dietz A. 311 Dieuaide-Noubhani M, 232 Dijkman MJ, 550, 557, 559, 560 Dilley RA, 648 Dilworth MJ, 497-501, 504-7. Dilworth SM, 40 Dincher S. 91, 92, 95 Dincher SS, 91, 93, 538 Diner BA, 647 Dinesh-Kumar SP, 582, 586, 598 Ding B, 28-30, 32-34, 36, 42, 43, 45, 166, 167, 198-200, 203, 207 Dingwall C, 35, 40, 41 Dircks LK, 464, 483, 484 Dirick L., 71 Ditta GS, 239, 291

Dittrich W. 506 Dixit R. 583 Dixon M, 391 Dixon MS, 585, 586, 597 DIXON RA, 251-75: 93, 94. 252, 254, 257, 258, 261, 263, 265, 266, 268, 391, 392, 526, 534, 538-40, 593, 720 Dixon RAF, 363 Dizengremel P, 615, 726 Djudzman A, 279 Doares SH, 360, 365, 367, 372, 373 Dobson HEM, 557 Dodt HU, 176 Doebley J, 688 Doehlert DC, 79, 80, 258 Doepner B, 240 Doepner G, 152 Doerner PW, 93 Doherty W, 623, 624, 626 Doke N, 252, 254, 255, 257. 261, 535, 536, 539, 592 Dolan L, 282 Dolezal K. 98 Dolferus R. 239 Dolganov N, 343 Domier LL, 310 Domigan NM, 509 Dommisse EM, 302, 313 Donald AM, 72, 74, 78 Donaldson RP, 615, 624 Donelly D, 647 Dong C-H, 100 Dong JG, 445 Dong W. 56 Dong XH, 364 Dong X-N, 531 Donovan JM, 407, 416 Dons C. 615 Dons HJ, 688 Dons JJM, 308-10 Dooner HK, 127 Doris F, 468-72 Doris FP, 469, 470 Dörmann P. 115 Dormer RL, 180 Dorokhov YL, 45 Dorr I, 192, 203 Dostatni R. 647 Douce R, 113, 228 Dougherty WG, 438, 448, 449 Doughty J. 465, 479 Doussiere J, 255, 257, 260 Dove S. 471 D'Ovidio R. 261 Dowling DN, 503 Downton WJS, 615, 624 Dozolme P, 407, 421 DRAKE BG, 609-39; 610-18,

622-24, 626-28

Draper J, 267, 268, 299, 311, 539 Drapier D, 646 Dreschers J, 538 DREW MC, 223-50: 224-27. 233-35, 237, 238, 240-42 Driessen FM, 559 Driessen HPC, 289 Driscoll BT, 498 Drøbak BK 471 473 Droillard M-J, 551 Droog FNJ, 95 Drory A, 551, 562, 564 Droux M. 722 Drummond BJ, 152 Dry IB, 704, 714, 715, 718 Du H. 475 Duan X. 305 Dubald M, 479, 481, 483 Dubertret G. 123 Dubnau J, 681 Dubrovo PN, 509 Duchene M. 471 Duck NB, 481 Duckett CM, 198, 199, 282 duCloux HC. 615 Dudek RW, 537 Dudley J, 127 Dudley LM, 615 Dudley RK, 384, 390 Dufau ML, 589 Duff GA, 612, 615 Duffy JF, 329 Duke SH, 79 Dumas C, 463, 464, 554 Dumas E. 91 Duncan JD, 435 Duncan MJ, 497-99 Duncan RE, 552, 555 Dunigan DD, 537, 593 Dunlap F. 70, 71 Dunlap JC, 329, 334, 340 Dunlap JR, 556 Dunwel JM, 316 Durand M. 200 During H. 201, 214 Durnford DG, 646 Durrant JR, 646 Durso NA, 170, 172 Duss F, 231 Duvick J. 436 Dwyer KG, 557 Dwyer ND, 291 Dwyer SC, 257 E

Eady C, 483

Earl CD, 503

Eamus D, 612, 613, 615

Drake J. 598, 600

Eastwell KC, 116 Eaton GW, 554 Eaton-Rve JJ, 664 Ebizuka Y. 266 Ebneth M. 366 Eccleston VS, 125, 126 Echevarria M, 414 Eckard KJ, 478 Eckenrode VK, 180, 181 Ecker JR, 57, 278-81, 283, 285, 286, 288, 289, 527 Eckes P. 310, 311 Edelstein M. 226 Edery I, 349 Edgerton MD, 478 Edlund A. 62 Edmunds LN, 347 Edwards A. 75, 76 Edwards DN, 591 Edwards GE, 726 Edwards R, 265, 266 Edwards S, 228, 231, 232 Eggermont K, 367, 372, 373 Egli DB, 612 Eguchi H. 241 Ehret CF, 332, 346 Ehret DL, 615 Ehret R. 363, 367 Ehrhardt DW, 170 Ehrig T. 182 Eichholz A, 37, 45 Eidsath A, 180 Eilers M. 154 Eisenberg A, 479 Eisenman RN, 152 Eisenmann-Tappe I, 286, 287 Eisinger WR, 281 Ek B. 77, 78, 417 Eklöf S. 54 Elborough KM, 127 el Din AKYG, 498, 499 El Guezzar M, 499, 500 Elhai F. 334 Elhai J. 334 Elkan GH, 497 Elkind Y. 526 El Kohen A, 624 Elleman CJ, 422, 465, 466 Eller N. 471 Ellingboe AH, 540 Elliott AR, 300, 305, 310, 312 Elliott RC, 696 Ellis EC, 202, 204, 209 Ellis JF, 94, 302, 313, 576, 598 Ellis JG, 238, 252, 262, 301. 530, 576, 582, 586, 598, 599, 602 Ellis JR, 298 Ellis THN, 78 Elmes M, 124 El-Sawi Z. 690

Feussner I, 362, 363, 367

Elthon TE, 707, 718, 721 Faergeman NJ, 119 Emerich DW, 497 Emsley P. 588 Enami 1, 646, 656, 658, 659, 661-63 Enayati E, 317 Endara ME, 364, 531 Endrizzi K. 684 Enenkel C. 40 Engel A, 411 Engel E, 656-58 Engel K-H, 314 Engel R. 550 Engelke JA, 504 Engelke TH, 498, 499 Engeseth NJ, 119 Engström A, 265 Engström Y, 592 Epel BL, 33, 34, 182, 183, 200, 208 Epp O, 646, 652 Epperlein MM, 261 557 Epstein E, 56, 60, 61 Erdmann B, 224, 241 Erickson AE, 231 Erickson JM, 646, 647 Erickson RO, 694 Ericson B, 152 Eriksson M. 708 Ermantraut J. 169 Erny C. 33 Errington RJ, 173 Ersek T. 533 Erwee MG, 30 Esaka M. 262 Esashi Y. 281 Esau K, 30, 198, 202, 210 Esch J. 138, 143, 157, 158 Esch JJ. 141, 143, 145, 149, 152, 153 Eschrich W. 192, 198, 214 Escoubas J-M, 719, 720 Eshed Y, 690 Esquerre-Tugaye MT, 362 Estelle M, 57, 279-82, 285, 687 Estruch JJ, 479, 481, 482, 690 Euskirchen G, 180-83 Evans FC, 142 Evans HJ, 504 Evans IM, 384 Evans J, 40 Evans JR, 616 EVANS MMS, 673-701 Evans WR, 504 Evensen K, 562 Evensen KB, 556-58 Evert RF, 37, 199

Facchini PJ, 437, 438

Eyden-Emons van A, 559

Fagerstedt KV, 231, 235 Fahlstadius P. 365 Fairbairn D. 129 Fairweather NF, 588 Faiss M, 98 Faleri C, 470 Falkenstein E, 359, 367, 368 Falkowski PG, 719, 720 Fallon KM, 184 Fan C. 115 Fan H. 384, 386, 393, 394 Fan TW-M, 228, 231 Fang N. 450 Fantes V. 312 Farage PK, 617, 620 Farago S. 94 Farden KJF, 504 Farkas DL, 166, 167, 176 Farkas T. 264 Farmer EE, 356, 360, 365, 367, Farnden KJF, 509 Farquhar GD, 610, 616 Farquhar IR, 615 Farrand SK, 310 Farrar JF, 198, 200, 204-6. 208, 209, 215, 624, 726 Fatima N. 589 Fauth M. 268 Fawcett T, 110, 129 Faye L, 311, 409, 413 Feenstra WJ, 82, 142, 149 Feher G, 646, 647, 652 Feijó JA, 472 Feil R. 232 Feix G, 384 Fel RJ, 227 Feldman JF, 329 Feldman LJ, 685 Feldmann K, 152 Feldmann KA, 141, 152, 153, 156, 157, 280, 281, 283, 285, 286, 288, 314, 675 Feldwisch J, 62 Felix G, 258, 288, 557, 685, 691 Felle HH, 169, 228 Fellows RJ, 205 Feltkamp D, 101 Fenning TM, 240, 242 Fennoy SL, 237 Ferl RJ, 238, 239, 240 Fernández-Maculet JC, 445 Fernández-Piñas F. 337 Ferre P. 130 Ferriera F. 471 Fetcher N, 612, 615 Fett WF, 264 Fettiplace R, 407 Feung C-S, 61

Feys BJF, 366, 367 Fevziev YM, 614 Field CB, 610-15, 628 Fieuw S, 199, 201, 202, 211-13 Filipowicz W, 394, 395 Finan TM, 498-500, 503 Finch-Savage WE, 367 Findlay N, 207 Finer JJ, 309, 311 Fink CS, 464 Fink GR, 53, 55-57, 59-62, 152 Finkelstein A, 401, 402, 404, 405, 407, 409, 415 Finlayson SA, 240, 242 Finnegan EJ, 238, 582, 586, 598, 599 Finnegan J, 312 Firek S. 311 Firtel RA, 152 Fisahn J. 365, 367 Fischer HM, 503 Fischer RL, 527, 552, 696 Fischer U 407, 409, 411 Fischhoff DA. 311 Fisher DB, 37, 45, 198, 199, 202, 204, 205, 208, 209, 211, 214, 215 Fisher DG, 213 Fisher DK, 77 Fisher RF, 496 Fisher RH, 57, 58 Fisher T. 679 Fitting H, 559 Fitzsimmons KC, 260 Fleischmann BK. 169 Fleurat-Lessard P. 202 Flick BH, 551, 559 Flipse E, 77, 78, 81 Flor HH, 577, 578 Fluhr R. 91, 92, 262, 288 Flynn PA, 385, 387-89 Fogarty KE, 172 Fogel ML, 727 Foley RC, 262 Foley WJ, 628 Folk W. 394 Folk WR, 481 Follmann H. 716 Fong TH, 550 Fontaine T, 75, 77 Forbes DJ, 40 Forbush B, 646 Force T. 287 Ford RC, 653, 656-58, 662 Ford TL, 305, 307, 310, 313 Fordham-Skelton AP, 257 Fordyce AM, 501 Foreman D, 146 Fornerod MWJ, 311 Foroni C. 266

Forrester ML, 624 Forsyth FR, 550, 557 Fortin MG, 409, 509, 513 Foster GD, 311 Foster J. 72 Foster KR, 450 Foster R. 366 Fotinou C, 652 Fottrell PF, 497 Foufelle F. 130 Fox BA. 329 Fox GG, 230 Fox TC, 224, 226, 230, 231, 235, 237 Fox TW, 689 Foyer CH, 266, 724 Fraenkel DG, 498, 499 Fraley RT, 298, 301 Frampton J. 152 Franceschi VR, 29, 198, 213. 359, 360, 363, 367, 369, 371, 372 Francey RJ, 610 Franco-Obregon A, 240 Frankel LK, 664 Franken J. 467 Frankis RCJ, 480 Franklin HH, 168, 184 Franklin M. 505 Franklin-Tong VE, 168, 184, 465, 466, 473 Franks T, 299, 302, 312 Franksson O, 552 Franzmann L, 679 Frary A, 309, 530, 583, 584, 586, 591, 597, 598 Fraser PD, 439 Fray RG, 288, 439 Fredeen AL, 612 Frederick RD, 579, 584, 589, 591, 595 Fredric FS, 172 Fredrikson M. 552 Freeling M, 227, 228, 234, 236, 238, 685, 690, 695 Freer AA, 652 French D, 72, 74, 80 Frensch J. 205, 420 Fresnoy M, 71 Freundlieb S. 102 Fricke W, 204, 208 Fricker MD, 169-71, 173, 176, 184 Friedrich L, 91, 92, 95, 267. 530, 531, 538, 539 Fries H-W, 286, 287 Frigeri A, 409, 415 Frilling RS, 262 Frindt G, 414 Friso G. 662, 664 Fritig B, 531

Fritz L. 334 Fritz M. 98 Fritzsch G, 652 Frohberg C, 98, 104, 152 Frohnmeyer H, 392 Fromm ME, 310 Fromme P. 652, 663 Frommer WB, 199, 201, 207, 213, 541 Fronza G, 231 Fry KE, 615 Fry SC, 260, 261 Frydych J, 615 Fu Y, 71 Fuchs RL, 311 Fujimoto H, 305 Fujimura T. 690 Fujino DW, 550, 557, 558, 560, 561 Fujioka S, 435, 440, 445, 448, 557 Fujisawa K, 262 Fujiwara T, 33, 34, 36, 205, 207, 225, 240 Fujiyoshi Y, 646, 654 Fukai K, 506 Fukui T. 62 Fulbright DW, 258, 261, 540 Fulton JM, 231 Funk CD, 364 Furcinitti PS, 656 Furner IJ, 676, 687, 692 Furter R, 387 Furth PA, 104 Furukawa K, 450, 451 Furusawa 1, 113, 258 Fushimi K, 410-12, 414, 417, 646 Futai M, 62

G

Gabriel DW, 579, 588 Gad AE. 299 Gaffney T, 267, 530, 531, 538, 539 Gafni Y. 309 Gage DA, 438, 443, 444, 449, Gahrtz M, 198, 199, 209, 210 Galbraith DW, 182, 183 Gale J, 624, 625 Galina A, 233 Galinat WC, 687 Galindo RL, 591 Gallie DR, 238 Gallon JR, 330, 331, 348 Galway ME, 146 Gambley RL, 307 Gamborg OL, 306 Gamulin V, 152

Ganal MW, 530, 583, 586, 591, 597, 598 Gao M. 77 Gao XO, 583, 591 Garas NA, 539 Garbutt K. 612 Garcia RL, 612, 618, 622, 627, 628 Garcia-Bustos J, 39 Garcia-Luis A, 201 Garcia-Maroto F, 690 García-Martínez JL, 438, 450. 452, 453 Gard DL, 556 Gardeström P. 62, 114, 708, 726 Gardiol A, 498, 499 Gardiol AE, 498 Gardner HW, 258, 356, 360, 365 Gardner RC, 309, 310 Gariepy J. 36 Garka KE, 582, 591, 592 Garret A. 408 Gartland KMA, 299 Gaskin P, 435, 440, 441, 444-48, 450, 452 Gatehouse AMR, 299, 301 Gatehouse JA, 384 Gatenby AA, 37 GATZ C, 89-108; 91, 97-99. 101, 102, 104 Gaugain F, 615 Gaut RL, 237 Gavrilov AG, 648 Gawronska H, 450, 451 Gay AP, 615 Gay G. 463, 464 Geballe AP, 311 Gebhardt C, 240, 587, 594 Geelen D, 416, 417, 421 Gehring CA, 170 Gehring WJ, 681 Geiger DR, 199, 205 Geiger H, 467 Geitmann A, 474, 477 Gekakis N, 329 Gelasco A, 646 Gell AC, 475 Gelperin A, 176, 177 Gelvin SB, 305, 318 Generozova IP, 227 Genetet I, 531 Genin YV, 83 Gennis RB, 706 Gerace L. 40 Gerdes H. 182 Gerhart MJ, 582, 591, 592 Gerhold D. 579 Gerlach WL, 238 Gerster J. 475

Gerstner O. 690 Getz HP, 211 Ghanotakis DF, 647, 652, 656 Ghartz M. 212 Gheysen G, 540 Ghiretti-Magaldi A, 646, 653, 656, 664 Ghosal D, 138 Ghosh SJ, 287 GHOSHROY S, 27-49 Giacometti GM, 653, 656, 662-Gianinazzi S. 91 Giaquinta RT, 198, 199, 359, 367, 369 Gibbins JR, 503 Gibbon BC, 471 Gibbs AJ, 33 Gibbs CS, 580 Gibbs J. 241 Gibeaut DM, 474, 477 Giblin EM, 124, 127 Gibson T. 152 Gidley MJ, 74, 75, 80 Giesman-Cookmeyer D, 33, 34. 36 Gifford EM, 675, 676 Gifford RM, 610, 612, 615, 624 Gil P. 102, 311 Gilbertson RL, 29, 32, 34, 36, 37, 42, 45 Gilchrist A. 589 Gilchrist DG, 243, 264, 528, 534 Giles L., 726-28 Gilissen LJW, 464, 556, 557. 560 Gillard JW, 363 Gilles-Gonzalez MA, 291 Gillespie SKH, 591 Gillham NW, 708 Gilmore TD, 40 Gilmour SJ, 441, 444, 450 GILROY S, 165-90; 169-71, 176, 180, 184, 482 Gilula NB, 30 Gimmler H. 359 Ginzburg BZ, 403, 405, 415, 418 Giovane C. 36 Giovannoni JJ, 286, 288 Girard J, 130 Giroux MJ, 69, 70, 72 Gisi U. 367, 372 Giuliano G, 439 Giuliano KA, 175, 178, 179 Glascock C, 530 Glaser E, 721 Glazebrook J, 530, 531 Glazener J. 254 Glazener JA, 254, 263, 535,

536

Glenn AR, 497-501, 504-7, 512 Glick BR. 52, 53, 299 Glinka Z. 403, 405, 416 Glover B, 152, 158 Gober JW, 504 Godefroy-Colburn T. 33 Godiard L, 580, 586, 589, 594, Goerig M, 362 Goffreda JC, 138 Gogala N. 367, 369 Goh CJ, 550 Golan-Goldhirsh A, 463-65 GOLDEN SS, 327-54: 334. 336, 337, 339, 341-43, 345, 346, 348 Goldfarb D, 39 Goldfarb DS, 36, 39 Goldsborough MD, 286 Goldsbrough AP, 310 Goldsbrough PB, 384, 551 Goldstein LSB, 157 Golovkin M, 157, 158 Gomes AMTR, 551, 564 Gomez-Lim MA, 709, 711, 713, 718, 721 Gomord V. 311 Gonzalez G, 291 González-Jaén MT, 91, 95 GONZÁLEZ-MELER MA. 609-39; 610, 622-24, 626, 628 Gooch V. 334 Good AG, 224, 230, 232 Good NE, 61 Goodbody KC, 172, 173, 471 Goodbourn S, 41 Goodchild DM, 648 Goodenough UW, 260 Goodman HM, 91, 92, 436, 446, 447, 449, 452, 563 Goodman RM, 34, 91, 530 Goodrich J. 154 Goodridge AG, 115, 119, 121 Goodwin PB, 30 Gopalan S. 529, 531, 533, 579 Gopalraj M, 57 Gordon JC, 615 Gorg R. 532 Gori DF, 551 Görlach J. 92, 104 Gorlich D, 40 Gosselin A, 615 Gossen M. 91, 99, 101, 102, 104 Goto K. 329 Goto M. 262 Gotoh Y, 282 Gottschalk M, 37, 45

Gough A, 166, 167, 176

Gleiter HM, 664

Gough AH, 179 Gough S. 367, 372 Govindjee, 614, 628 Goyal A, 5, 8, 12, 16, 18, 708 Graebe JE, 432, 435, 437-42, 444, 445, 449, 450 Graf T. 152 Graham IA, 130 Graham MW, 310, 562 Graham PH, 497, 506 Graham RD, 192 Gralla EB, 720 Grange RI, 207 Grant JE, 302, 313 Grant MR, 580, 586, 589, 594, 597 Grant S, 311 Grant WJR, 624 Grantham GL, 45 Grasser F. 152 Graves JD, 287 Graves LM, 287 Gray JC, 662 Gravston GF, 509 Graziani Y. 407 Grbic V, 527 Greef JD, 690 Green BJ, 235 Green BR, 646 Green DR, 264, 535 Green PB. 281 Green PJ, 102, 311 Green R, 92, 262 GREENBERG JT. 525-45: 243, 263, 266, 529, 531, 534, 540, 541 Greene B, 691, 694, 696 Greene T, 72 Greenland AJ, 95 Greenway H, 225, 227, 230, 232, 233, 237, 241 Greenwood JS, 359, 367 Grégory N. 69 Greipsson S, 226 Greisebach H, 496 Greitner C, 615, 618 Grenier G. 123 Grenier J. 91 Gresshoff PM, 496, 499, 501, 504 Grevelding C, 312 Greyson RI, 687, 694 Grierson C, 282 Grierson D, 288, 299 Griesbach RJ, 304 Griffin KL, 623, 624 Griffith S, 209, 210 Griffith SM, 497, 506 Griffiths A, 264 Griggs DL, 447 Grignon N. 200

Grimes HD, 213, 360, 363, 367, 369-72 Grimes PM, 497 Grimm E. 200, 209, 210 Grisafi PL, 57, 60, 62 Grivell LA, 727 Grobbelaar N, 332, 333, 348 Groffen J. 286 Groom O.J. 257 Groot SPC, 688 Gross DJ, 169 Gross HJ, 394 Grosse W. 241 Grosselindemann E, 435, 440, 441, 444, 445 Grosskopf DG, 557 Grossman AR, 343, 346 Grossmann 2, 37, 45 Grote M. 471 Grotewold E, 152 Groth B, 359, 367, 368 Grubin CE, 582, 591, 592 Grulke NE, 612, 615, 622, 628 Grusak MA, 202, 205 Gruss P. 104 Gu X, 496 Guan H-P, 78, 79 Guan X, 130 Guard AT, 688 Guardiola JL., 201 Gubatz S. 465, 467 Gubb IR, 360, 365 Gudleifsson BE, 226 Guehl JM, 615 Guerin V, 501, 505 Guerinot ML, 512, 513 Guern J, 240, 410, 412, 414, 417, 421 Guest JR, 239 Guest M. 281, 285 Guevara JG, 504 Guggino WB, 408, 410-12 Guglielminetti L., 231 Guilfoyle T, 95, 262 Guilfoyle TJ, 690 Guilley H, 384, 390 Guiltinan MJ, 77 Guinel FC, 231, 232 Guinn G. 615 Gunderson CA, 612, 613, 615, 617 Gundlach H. 358, 360, 372 Gunner MR, 647 Gunse B, 416, 420 Guo A, 91, 93, 263, 266, 531, 534, 540, 541, 579, 587 Guralnick B, 41 Gussin GN, 503, 504 Gustafson FG. 555 Gustafsson A, 555 Gustin MC, 291

Gustine DL, 261 Gutfinger T, 687, 690 Gutknecht J, 402, 404 Gut-Rella M, 530 Gutteridge S, 37 Guy RD, 708, 727 Guyon D, 123 Guzman P, 279, 281, 285, 28

Guzman P. 279, 281, 285, 289 H Haag E, 664 Haaker H, 501, 504, 508-10 Haas G, 687 Haase W. 652 Habash DZ, 617 Habenicht AJR, 362 Habera LF, 154 Haberer G, 679 Habner JF, 712 Habricot Y. 688 Hackett G, 169, 470, 472, 473. 477 Hadfield C. 329 Hadi MZ, 309, 311 Haecker A, 684 Haecker G, 263 Hagedorn CH, 505 Hagen G. 95, 262, 690 Hager A. 259 Hagerup O. 555 Hagiwara S. 169 Hahlbrock K, 94, 252-54, 258, 259, 261, 266, 392, 602 Hahn A, 125, 130 Hahn KM, 178, 179 Hahn MG, 268, 496 Hahn-Hagerdal B, 707 Haimovitz-Friedman A, 535 Hain R. 59 Haines TH, 405 Hajduk SL, 706 Hakamada K. 113 Hakamatsuka T. 266 Hakansson G, 719, 720 Hake S, 38, 156, 167, 679, 681, 682, 685, 688-91, 694-96 Halberg F. 332 Halevy AH, 548-50, 556-58, 561 Hall A, 255 Hall BD, 387 Hall IV, 550, 557 Hall JC, 329 Hall JL, 198, 201 Hall MN, 39 Hall PJ, 61 Halliwell B. 254 Hallman WK, 316 Halterman DA, 579, 584, 589,

591, 595

Ham J. 40 Ham JM, 612, 613, 615, 628 Hamaide-Deplus MC, 706 Hamberg M, 356, 360, 365 Hamerlynck EP, 624 Hamill JD, 54 Hamilton CM, 309 Hamilton DA, 481 Hamilton RH, 61 Hamilton-Kemp TR, 372 Hamm HE, 589 Hammer JL 157 Hammerschmidt R, 258, 261. 527, 540 HAMMOND-KOSACK KE 575-607; 254, 257, 529, 533, 576, 577, 584-86, 592, 594, 596-98, 602 Hamner KC, 329 Han SH, 499 Han SS, 556 Hanagata N, 347 Hancock JT. 254, 257, 263 Hand SC, 239 Hangarter RP, 61 Hanhart CJ, 435, 436, 465 Hänhijarvi AM, 231 HANKAMER B, 641-71; 646, 650, 651, 653, 654, 656, 658, 659, 661, 664 Hann C, 469 Hanna WW, 555 Hannah LC, 68-70 Hansen K. 467 Hanson AD, 229, 230, 234 Hanson DD, 481 Hanson MR, 718, 721 Hanson PJ, 612 Hansson Ö, 646 Hanus J. 98 Haq TA, 301 Hara-Nishimura I, 409, 411, 416, 418 Harberd NP, 448 Harding EI, 94 Hardtke CS, 688 Hareven D, 687, 690 Harkey TD, 615, 620 Harmon BV, 243 Harms K, 359, 365 Harn C, 68 Harpham NVJ, 280 Harrington A, 498, 499 Harrington G, 202 Harris HW, 417 Harris WM, 226 Harrison K, 154, 585, 586, 597 Harrison MJ, 198, 252 Harte C, 552 Hartmann E. 40, 102 Hartmann M-A, 416

Hartung W. 359 Heilmann B. 359 Harwood J, 110 Heilmann J. 467 Harwood JL, 118 Heim R, 182, 183 Hasan O, 435, 447, 450, 452, Heim U, 68, 69, 71, 210, 211 453 Heinlein M, 33, 34, 182, 183 Hasegawa H. 412 Heins L, 98 Haseloff J, 177, 182, 183 Heinstein PF, 254, 255, 259, Hasezawa S, 172 261, 263, 362 Hashimoto C, 582, 591, 593 Hastings JW, 334, 342 Heintzen C, 366, 367 Heise K-P, 120 Hastings SJ, 622, 628 Heitman J, 39 Hata S. 515 Heinowicz Z, 403, 420 Hatada EN, 40 Held AA, 624 Hatch MD, 726 Held LI, 141 Hatzios KK, 94 Heldt HW, 726 Hatzopoulos P. 129 Helentjaris T, 440 Hauck B, 615 Helinski DR, 239, 291 Haudenshield JS, 29, 30, 32, Heller KB, 409 42, 43, 45 Hempel FD, 685 Haughn GW, 138, 142, 149, Henderson R. 652 683, 688, 696 Hendrick CA, 435, 453 Haugland RP, 167, 178, 184 Hendrix DL, 612, 615, 621 Hause B, 363, 367 Henfrey RD, 387 Havaux-Copf B, 100, 101 Hengy G, 92, 104 Have AT, 562, 563 Hennig J, 91, 93, 540 Havelka UD, 615 Henning FP, 624 Hawke JC, 116, 119 Henriques F, 648 Henry MF, 704, 706 Hawker N. 126 Hawkins DJ, 115 Henrysson T, 649 Hawthornthwaite-Lawless Hensgens LAM, 311 AM. 652 Henskens JAM, 562, 563 Hawtin RE, 182 Henzel WJ, 583, 591 Hayashi H, 37, 45 Henzler T, 402, 405, 406, 412, Hayashida N. 282 414, 423 Haydon DA, 407 Hepler LH, 178 Hayes PM, 200 HEPLER PK, 461-91; 29, 169, Hayes RJ, 33 178, 180, 469-73, 477 Hayes RR, 497 Herbers K, 301, 541, 579 Hayes TR, 124 Herman B, 170 Hazebroek JP, 451 Herman EM, 407, 409, 411, Hazelrigg T, 182, 183 413, 421 He CJ, 240-42 Herman P, 138 He C-P, 554 Herman PL, 143, 152, 153 He SY, 263, 529, 531, 533, 579 Hernandes D, 30 He Y, 469 Hérouart D. 265 Heath IB, 469 Herrada G, 501, 502, 505, 506, Heath MC, 264, 534 510, 511 Heath OVS, 610 Herrera-Estrella L, 298 Heath RJ, 121 Herrin DL, 341 Heberle-Bors E. 282, 464 Herrmann A. 169 HEDDEN P, 431-60; 435, 438-Herrmann RG, 647 42, 444, 445, 447, 448, 452 Hers H-G, 232 Hedderson F, 465 Hershey HP, 94, 317 Hedley C, 78 Hedley CL, 76, 83, 209 Herzog J, 92 Hesketh JD, 612, 615 Hedrich R, 611 Heslop-Harrison J, 462, 465, Hedrick SA, 384, 385, 392 468, 469, 474, 477, 557 Heguy A, 591, 592 Heslop-Harrison Y, 465, 468,

469

Hess B, 226

Hess D, 467

Hehl R, 582, 586, 598

Heidecker G, 286, 287

Heichel GH, 496, 502, 511

Hesse T. 62 Hetherington AM, 170, 184 Heungens K, 540 Hevesi M. 264 Hew CS, 550 Hewitt J, 201, 210 Hewitt JD, 201 Hibino T. 364 Hicklenton PR, 615 Hicks GR, 311 Hicks GS, 689 Hicks MA, 675 Hiei Y, 305, 309, 310, 316 Higashi RM, 228, 231 Higgins VJ, 254, 258 Higgisson B, 498, 499 Hildebrand D. 372 Hildebrand DF, 367, 369, 372 Hilder VA. 299, 301 Hilf ME, 45 Hilgenberg W, 60, 61 Hill GC, 706 Hill RD, 239 Hill SE, 557 Hillen W, 91, 98, 101, 102 Hills MJ, 119 Hils MH, 227 Himelblau E, 413, 416, 421 Hinchee MAW, 301 Hinz G, 417 Hirano T, 182, 183 Hiratsuka J, 646 Hirche H, 240 Hirel B. 481 Hirner B, 199 Hirose S, 389 Hirschberg J, 436, 647 Hirschman J, 503 Hirt H. 282 Hiscock SJ, 465, 479 Hiser C, 708, 711, 713, 718, 721, 726 Hiser CH, 713 Hitz WD, 127, 198, 211, 213 Hizukuri S. 74, 77 Hlousek-Radojcic A, 128 Ho LC, 201, 207, 556, 615 Hoban TM, 329 Hobbie L. 280 Hochachka PW, 228 Hockenbery DM, 265 Hocking P. 615 Hocking PJ, 615, 627, 628 Hoddinott J, 207, 615 Hodge R, 466, 479 Hodges ML, 650, 654, 659, 661,664 Hodges TK, 298 Hodkinson S, 183 Hoefnagel MHN, 715, 716,

718, 726, 727

Hoekema A, 316 Hoekstra FA, 463, 464, 556-58, 560 Hoering TC, 727 Hoffman NE, 278, 557, 558, 560, 561 Hoffman TL., 228 Hofmann B, 620 Hofmann C. 92 Hofmeyr JDJ, 688 Höfte H, 408, 409, 413, 416, 421 Hofvander P. 78 Hogan KP, 615 Hogan NM, 550, 551, 559 Hogan PS, 311 Hoganson CW, 646, 662 Hoge JHC, 92 Hoh B. 417 Hohn B. 299, 316 Hohn T. 298, 316 Hoisington DA, 152, 528 Hojberg O, 224, 225 Holbrook LA, 367, 372 Hölder S, 264, 265, 360 Hole CC, 200 Hole DJ, 227, 233, 234 Hole P, 227, 233, 234 Holland D. 309, 334 Holland EA, 612 Holland R, 114 Hollenberg SM, 40 Holliday M. 533 Hollinger DY, 615 Hollman PCH, 467 Hollricher K, 263, 532 Holmgren A. 716 Holmgren P, 624 Holt DC, 95 Holt J. 138 Holt T. 528 Holton TA, 301 Holub EB, 532, 533, 595, 598, 602 Holzenburg A, 653, 656-58, 662 Hom JL, 612, 615 Hom ML, 411 Hombergen E-J, 138 Homblé F, 409 Hondred D. 230 Hong SK, 682 Hong Z, 410, 496, 497, 500 Honig B, 647 Hoogenraad NJ, 474 Hooks MA, 228, 231, 232 Hooykaas PJJ, 95, 299, 312, 316 Hope TJ. 154 Hopkins CM, 579, 587

Hopkins N, 183

Hopper AK, 40

Hoptroff CGM, 317 Horder B, 201 Horejsi TF, 465, 466 Horgan R, 690 Horikoshi M, 390 Horn MA, 593 Hornez JP, 497, 499, 500 Horowitz J, 157 Horsch RB, 298, 299, 316 Horton P. 646 Horvath SM, 615 Hou A. 482 House CR, 402, 405 Hoyland K, 615 Howard EA, 41, 238 Howe GA, 365, 373 Howell SH, 32, 46, 59, 359, 366 Howitt SM, 504 Høyer-Hansen G, 649 Hoyle MN, 329 Hoyle R, 316, 317 Hrazdina G, 266 Hrubec TC, 615, 624 Hsiao TC, 205, 420 Hu G, 263, 534, 598, 600 Hu W. 182, 183 Hu X, 157, 158 Hua J, 283, 285 Huang AHC, 123, 466 Huang B-Q, 551, 552, 555 Huang F-Y, 477 Huang H-C, 263, 533 Huang J-F, 359, 367, 369, 375 Huang JS, 531 Huang R. 68 Huang S. 471 Huang T-C, 330, 332, 333, 345, 346, 348 Huang XJ, 154 Hubbard L, 413 Huber R, 588, 646, 652 Huber SC, 615 Hubert B. 559 Hudak J, 474 Hudman JF, 497, 499, 500 Hudson A. 695 Hudson GS, 612, 615, 616, 618, 619 Hudson KL, 582, 591, 593 Hughes J, 102 Hughes WA, 180 Hugosson M. 721 Hugueney P. 439 Hulbert SH, 263, 266, 528, 534, 541, 598, 600, 601 Huleihel M, 286 Hull RJ, 29, 30, 32, 42, 43, 45 Hülskamp M, 140, 141, 143,

145, 146, 148, 149, 151,

159, 465, 466

Hultmark D, 592 Humbeck C, 499 Hume JA, 694 Hummel R, 119, 287 Humphrey BA, 512 Humphries SW, 616 Hung HW, 612, 615 Hung L-M, 330, 333 Hunold R. 308 Hunsaker DJ, 612, 622, 627. 628 Hunt HW, 615 Hunt M, 91, 538, 540, 541 Hunt TP, 503 Hunter-Ensor M. 349 Huntley B, 613 Hug S, 707 Hurkman WJ, 258 Hurley M, 311 Hurtig M, 538 Hush J. 178 Husic DW, 3, 8, 10, 18 Husic HD, 3, 8, 10, 18 Hussey PJ, 471 Hutcheson SW, 254 Hutchin PR, 617 Hutchinson JF, 310 Huttly AK, 408, 413, 416 Huttner E, 696 Hwang I, 446, 447, 449, 452 Hwang S, 182, 183, 341 Hylton CM, 71, 76, 77, 81-83

1

Iacobucci M. 468 Ichikawa H. 690 Ichimura K. 282 Icht M. 309 Idris ZM, 550 Iglesias AA, 71 lino M. 54 Ikawa M, 183 Ikeda R. 435, 440 Ikegawa T. 261 Ikemoto H, 331, 346, 347 Ikeuchi M. 663 Ilic N, 54 Imai K. 612 Imai Y. 41 Imamoto F. 388-90 Imaoka A, 647 Imaseki H, 387, 389-91, 563 Ingram TJ, 435, 440, 446, 453 Innes R. 279 Innes RW, 527, 599 Inohara N. 62 Inoue K. 418 Inoue Y, 656, 658, 659, 661. 662, 664 Inouye S. 182, 183

Inzé D. 262, 265-67, 540 Ip YT, 592 Irish VF, 676, 687 Irrgang KD, 647 Irving HR, 170 Isaacs NW, 588 Isenberg G, 172 Ishiakwa M, 45 Ishibashi K. 414 Ishibashi T. 646 Ishida Y, 305, 309, 310 Ishiguro S. 159 Ishii T. 463 ISHIURA M, 327-54; 334-36, 341-43, 345, 346, 348 Ishizuka K, 259, 360 Isogai Y, 662, 663 Israel AA, 615 Israel DW, 615 Israel HW, 552 Issakidis E, 722 Itoh H. 91 Itsukaichi T, 349 Iwamoto H, 367, 369 Izant JG, 183 Izawa T, 305 Izmailov SF, 501, 506, 509

I

Jackowski S, 113 Jackson AP, 469 Jackson DM, 372, 679, 682, 685, 694 Jackson DP, 30, 38, 39, 41, 43, 152, 167, 696 Jackson FR, 329 Jackson GS, 444 Jackson MB, 226, 227, 230, 231, 235, 240-42 Jackson RB, 611-15, 628 Jackson SL, 469 Jacob F. 209, 210 Jacob J. 615, 618 Jacob JS, 650 Jacobs FA, 513 Jacobsen E, 77, 78, 81, 82 Jacobsen SE, 682, 691, 693, 694 Jacobson GR, 499, 500 Jacquot JP, 722 Jaeger CH, 615 Jaffe LF, 472 Jagadish MN, 498-500 Jähne A. 313 Jahnke S, 200, 210 Jakubowska A, 61 Jamai A, 210 James AT. 715 James DW Jr, 127

Jabs T. 254, 259, 266, 536

James MG, 80 Jamison CF, 337 Jamont AM, 554 Jane J. 80 Janes H, 560 Jang JC, 620 Janmaat K. 282 Jansen T, 662 Janssen B-J. 309, 310 Janssen JHJA, 626 Janssens J. 94 Janssen-Timmen U. 362 Jansson C, 77 Jansson S, 646, 650, 653, 654, Jap BK, 411 Jardetzky O, 227, 228, 234 Jarvis P. 402, 405 Jarvis PG, 615, 624 Jasin M. 314 Jasinska I, 100 Jaskunas R. 41 Jauh GY, 474, 475 JAWORSKI JG, 109-36; 113, 117, 119, 122, 124 Jeannette E. 69 Jeblick W. 254, 262, 268, 539 Jefferies PR, 435, 453 Jefferson RA, 91 Jeffrey DC, 551, 559 Jendrisak J, 387 Jendrisak JJ, 387 Jenes B, 300 Jenkin LET, 232 Jenkin W. 242 Jenkins PJ, 72, 74, 78 Jenner CF, 192 Jennings JC, 439 Jensen AM, 287 Jensen PJ, 54, 61 Jensen WA, 554, 555 Jeon K, 494, 496 Jeong B-K, 417 Jeppsson H, 707 Jepson I, 95 Jeschke WD, 192 Jessop A, 685, 691 Ji C, 531, 533 Jia Y, 579, 584, 589, 591, 595 Jian L-C, 41 Jiang L-W, 30 Jiang P. 124 Jibard N. 40 Jin HN, 504, 507 Jo I, 417 Job C, 389 Job D. 389 Johal GS, 263, 266, 436, 438, 528, 541, 577, 586, 601, 689 Johansson I, 362, 417

James M. 79

John KM, 40 John PLC, 178, 440 Johns C, 718, 721 Johnsen KH, 612, 615 Johnson C. 159, 201 JOHNSON CH, 327-54; 180, 329, 336, 337, 339, 341-43, 346-48 Johnson HB, 138, 627 Johnson JR, 225, 233, 234, 237, 238, 240 Johnson KD, 407, 409, 411. 413, 417, 421 Johnson LC, 468 Johnson MP, 329 Johnson PF, 580 Johnson RPC, 38, 96, 367, 372, Johnson S, 96, 360, 558 Johnson WB, 127 Johnston C. 255 Joliffe PA, 615 Joliot P. 646 Jolivet Y. 726 Jolliffe PA, 615 Joly RJ, 420, 423 Jonak C. 282 Jonard G. 384, 390 Jones A. 115 Jones AM, 62, 263 Jones C, 528 Jones DA, 576, 580, 582, 585, 586, 589, 596-98, 602 Jones DG, 624 Jones GP, 402 Jones H. 127 Jones J. 154 JONES JDG, 575-607; 142, 199, 252, 254, 257, 301, 529, 530, 533, 576, 577, 580, 582, 583, 584, 585, 586, 589, 592, 594, 596-99. 602 Jones JW, 612, 615 Jones MEE, 535 Jones OTG, 592 Jones P. 612, 615 Jones RL, 169, 176, 417 Jones SB, 264 Jonsson L. 123, 362 Joos U, 472 Joosten MHAJ, 585 Jordan DC, 498-500 Jordan WR, 240, 242 Jording D, 498-500 Jorgensen B. 124 Jorgensen R. 467 Joshi V, 115 Jove R. 287 Joy K, 499-501 Jovard J. 363, 365

Jun TH, 287 June CH, 593 Jung JS, 410-12 Jürgens G, 58, 140, 141, 143, 145, 146, 148, 149, 151, 154, 158, 159, 678-80, 684, 685, 691, 692 Juvik JA, 79

K

Kaagman HMCM, 704, 718 Kachalsky A, 401 Kachurin AM, 652 Kader AA, 226 Kado RT, 410, 412, 414, 417, 421 Kadonaga JT, 386 Kadwell S, 479, 481, 482 Kaether C, 182 Kahn ML, 498, 503-5 Kainuma K. 77 Kaiser A. 98 Kalaitzis P. 286, 288 Kaldenhoff R, 408, 409, 412, 413, 416, 421, 423 Kallas T, 331 Kaltenborn SH, 333 Kamada H. 282 Kaminskyj SG, 469 Kamisaka S. 356, 368 Kamiya N. 403, 415 KAMIYA Y, 431-60; 54, 435-42, 444-47, 450, 452, 453 Kammerer L., 264, 265, 360 Kammerer S, 227 Kammerloher W, 407, 409, 411, 417, 421 Kandasamy MK, 557 Kane EJ. 237 Kaneko T, 330, 335, 346 Kang BJ, 302 Kang F, 114, 116 Kano-Murakami Y, 690 Kao T-H, 479, 480, 482, 556 Kapil RN, 552 Kaplan A, 624 Kapp D, 498, 499 Kapranov P. 711, 713, 718, 721, 726 Kapulnik Y, 718 Karakesisoglou I, 471 Karmann U, 409, 412, 416, 421, 423 Karp A, 307 Karr DB, 497 Karunanandaa B, 482 Kascer H, 118 Kashket ER, 504 Kassanis B, 91

589, 597 Katahira EV, 437, 438 Katavic V, 124, 127 Katinakis P, 507 Kato A. 394 Kato H. 261 Kato J. 369, 557 Kato T, 363, 367, 369 Katoh S, 663 Katsuhara M, 408, 409, 413. 416, 419 Katsumi M, 435, 448, 453 Katzen AL, 152 Kauffmann S, 531 Kaurov BS, 648 Kaushal P. 615 Kauss H. 254, 262, 268, 539 Kavanagh RH, 91 Kawaguchi A, 123, 539 Kawaguchi K. 463 Kawaide H, 438, 444, 449 Kawalleck P, 258, 261 Kawasaki T. 78 Kawazoe R. 341 Kay SA, 329, 334, 341, 349 Ke D. 226 Ke J. 130 Kearns A, 709, 718, 721 Keck RW, 648 Keddie JS, 585, 586, 597 Kedem O, 401 Keegstra K, 311, 439 Keeling CD, 610 Keeling P. 70, 71, 79 Keeling PL, 71, 76, 77 Keen NT, 529, 533, 576, 578. 579, 597, 599 Keener J. 503 Keetels CJAM, 77, 78, 81 Kehlen A, 358 Kehoe DM, 346 Keijers V, 58 Keijzer CJ, 465, 466 Keil M. 91, 96 Keini G, 312 Keith B, 438, 450 Keller B, 261 Keller JA, 562 Kelly AJ, 696 Kelly WB, 408, 409, 413, 416, 419 Kemper E, 312 Kempers R, 45 Kendall AC, 624 Kendall JM, 180 Kende H, 278, 279, 281, 285, 562-64 Kendrick RE, 450, 451 Kennedy G, 138

Kennedy IR, 502

Katagiri F. 390, 579, 580, 586,

Kennedy RA, 224, 226, 230, 231, 235 Kent B, 688 Kenton P. 267 Keppler LD, 254, 259, 263, 264 Kerhoas C, 463, 464 Kern R, 184 Kernan A. 374 Kerppola TK, 498 Kerr JFR, 243 Kerstetter R, 156, 681 Kessmann H. 92, 267 Keys AJ, 616, 617, 624 Khalik A. 231 Khan ZR, 138 Khoshnoodi J, 78 KIEBER JJ, 277-96; 278-81, 243, 283, 285, 286, 288 Kigel J. 226 Kihara A. 506 Kihl BK, 465, 466 Kikumoto S. 80 Kikuta Y. 362 Kim BC, 302 Kim DU, 302 Kim H-S, 258, 584, 586, 587, 589, 598 Kim JW, 310 Kim K-H, 120 Kim K-N. 77 Kim KS. 33 Kim SR, 366 Kim YS, 505, 506 Kimball BA, 612, 615, 618, 622, 627, 628 Kimmerer TW, 231 Kindl H, 362, 363 Kinet JM, 688 King DP, 329 King JJ, 57 King LS, 409, 417, 418 Kinney AJ, 110, 126, 127 Kippert F, 332 Kiraly Z. 264 Kirschbaum MUF, 617 Kishore GM, 29, 32, 122, 301 Kiss T, 394, 395 Kisu Y, 262 Kitajima EW, 33 Kitano H, 682 Kiyosawa K, 404, 406, 407, 414, 415, 418, 421 Kjeldgaard RH, 316, 317 Kjellbom P, 260, 362, 417, 530 Klaic B, 61 Klämbt D, 62 Kleczkowski LA, 69-71 Klee HJ, 54, 286, 288, 690 Klee M, 57 Kleier DA, 540 Klein B, 314

Kozlova GI, 227

Klein H. 130 Klein M, 211 Kleiner D. 504 Kleinfeld D, 176, 177 Klessig DF, 91, 93, 262, 263. 266, 267, 531, 534, 536, 540, 541 Klimov VV, 614 Klingensmith JA, 503 Kloeckener-Gruissem B. 236. Kloos D, 683, 684 Kloppstech K, 646 Kloth RH, 138, 143 Kloth S. 200 Klucher K. 696 Klug DR, 646 Klukas O, 652, 663 Knapp AK, 624 Knauf VC, 127 Knauf-Beiter G, 92, 104 Knauft RL. 551, 559 Knee EM, 280 Knegt E, 452 Knievael DP, 211 Knight H, 169, 178, 180 Knight LI, 278 Knight MR, 169, 178, 180, 264 Knight WG, 615 Knighton DR, 580 Knoers NVAM, 423 Knöfel H-D, 358, 467 Knogge W, 578 Knopp JA, 531 Knorr D, 32-34 Knox RB, 481, 483, 557 Knudsen J, 119 Knutson CA, 80 Knutzon DS, 124, 127 Ko T. 704, 709, 711 Kobayashi D, 579 Kobayashi DY, 597 Kobayashi E, 78 Kobayashi H. 182, 183 Kobayashi M. 435, 440, 441. 444, 446, 447, 450 Kobe B. 582, 588 Kobilinsky A, 615 Koch GW, 623, 624 Koch KE, 201, 207, 208, 620, Kochs G, 287 Koda Y, 362, 369 Koefoed-Johnsen V. 405, 415

Koepp DM, 40

Koerselman-Kooij JW, 211,

Koes RE, 301, 481, 683, 684

Kofranek AM, 549, 550

Koetje DS, 363, 367, 369, 370,

Kofron M. 305, 307, 310, 313 Koga S. 720 Kogel KH, 538 Kohl DH, 498, 505 Kohl JHC, 550 Kohno T, 470, 473 Koizumi M, 408, 413, 416 Kok B, 646 Kokkinidis M. 652 Kolarov J. 239 Kolattukudy PE, 113, 127 Kolch W, 286, 287 Kolega J. 178, 179 Koller HR, 615 Kölling A, 408, 409, 412, 413, 416, 421, 423 Komae K. 79, 80 Komaki MK, 688 Komari T, 305, 309, 310, 316 Komer E, 232 Kominami K, 183 Komiya H, 652 Komiyama T, 704, 706-8, 711, 718 Komor E, 37, 45, 205 Konan NK, 310 Koncz C, 310, 311, 314 Koncz-Kalman Z, 314 Kondo N. 123 KONDO T, 327-54; 180, 329, 334-36, 339, 341-43, 345, 346, 348 Konings W, 504 Konishi T, 113 Konopka RJ, 329 Koonin EV, 30 Koornneef M, 142, 143, 146, 149, 435, 436, 443, 444, 446, 447, 465 Kopczak SD, 465, 466 Kopp M. 531 Körber H. 314 Korfhage C, 311 Kornberg RD, 36 Kornberg TB, 152 Kornhauser JM, 329 Korsmeyer SJ, 265, 373 Korth HG, 266 Kortstee A, 481, 483 Kosaka H, 257 Koshiba T. 54 Koshioka M. 445 Kosower NS, 722 Kossmann J, 68, 78 Kotani H, 335, 346 Kotlikoff MI, 169 Kouchi H, 497, 506, 515 Kowalczyk S, 61 Kozai T. 318 Kozarich JW, 265 Koziel MG, 311, 314

Kraak MHS, 715, 718 Krab K, 721, 724, 727 Kraft D. 471 Kramell H-M, 366, 369, 557 Kramell R, 358 Kranz H, 130 Krapp A, 620 Krasnow R. 334 Kraus J, 394, 498, 505 Krauss N. 652, 663 Krebs EG, 287 Kremer DF, 612, 615 Kreps JA, 56 Kreuz K, 94 Kridl JC, 127 Kriedemann PE, 615, 624 Kristen U. 472 Kromer S, 726 Kronauer RE. 329 Krone W. 504 Kronebusch PJ, 240 Kronenberger J. 58 Kronguer RE, 329 Krotkov K, 624 Kruip J, 646, 650, 651, 653, 654, 659, 661, 664 Krumbein WE, 331 Krylova VV. 509 Kryzyzek R, 316 Ku MSB, 37, 45 Kubiske ME, 623 Kuboki Y, 79, 80 Kuc J, 259, 538-40 Kuc JA, 531, 533 Kuchitsu K, 257 Kueh JSH, 93 Kühlbrandt W, 646, 654, 661, 664 Kuhlemeier C, 230, 231, 238, 239, 463, 480, 481 Kühn H, 359, 362, 365 Kühtreiber W, 472 Kuiper PJC, 225, 227 Kuipers AGJ, 81 Kuipers GJ, 82 Kuleck GA. 61 Kulikauskas R, 482 Kulkarni RD, 334, 345, 346 Kullik I, 264 Kumagai F. 172 Kumar AM, 709, 711, 712 Kumar NM, 30 Kumashiro T, 305, 309 Kumazawa S. 331, 346, 347 Kunert KJ, 724 Kung S. 299 Kunkel BN, 578, 580, 586, 589, 591, 598, 602 Kunst L. 112 Kuntz M. 439

Kuo J. 207, 309 Kuo TM, 79 Kuppers M, 612, 615 Kuriki T. 78 Kuritz T. 334 Kuroiwa H, 472 Kuroiwa T, 472 Kurz WGW, 331, 497, 504 Kushnir S, 262, 266 Kustu S, 503 Kutach AK, 337 Kutchan TM, 264, 265, 358, 360, 372 Kutsuna S. 342, 343, 348 Kuwahara M. 412, 414, 417 Kuyvenhoven H. 211 Kwa SLS, 646 Kwak SS, 445, 446 Kwan BYH, 483 Kwast KE, 239 Kwok SF, 283 Kyriakis J. 287 Kyriakis JM, 287

L Laane C. 504 Labavitch JM, 559 Labes M. 500 Lackle SM, 138 La Cognata U, 68 Ladd AN, 284, 285 Lagrou C, 152 Laibach F. 555 Lam E, 243, 263, 536, 537. 646, 650 LaManna JC, 228 LAMB C, 251-75; 254, 257. 258, 262, 263, 264, 265, 266, 268, 384, 385, 392, 393, 530, 531, 534 Lamb CJ, 93, 94, 252, 260, 261, 362, 391, 530, 538, 540 Lamb R. 138, 140, 145 Lambers H, 615, 626, 706, 707, 714, 715, 727 Lambert RJ, 127 Lambowitz AM, 706, 708 Lammer D, 280 Lamond Al. 40 LaMorte RL, 612, 618, 622. 627, 628 Lamppa GK, 128 Lanahan MB, 54, 284-86, 288 Lancaster CRD, 647 Lancelle SA, 469, 470, 472, 473 Lande MB, 407, 416, 417 Landschulz WH, 580 Landsmann J, 311 Lane AN, 228, 231 Lane MD, 130

Lang A, 201, 207, 214 Lang JM, 281 Lange T. 432, 438, 440-43. 445, 448, 449, 452 Langebartels C. 267 Langenkemper K, 310, 311 Langridge P. 384 Lankhorst RMK, 507 **Laparra H. 308** Lapidot M. 533 Larabell SK, 559 Lardizabal KD, 124 Larkin JC, 138, 140-43, 145, 152, 153, 155, 156, 158, 159 Larkins BA, 38, 301, 384 LaRoche J, 719, 720 Larondelle Y. 232 Larrigaudiére C, 558, 564 Larsen PB, 557, 560, 562, 564 Larson RA, 266 Larson TJ, 113 Larsson C-T, 78, 417 Larsson H. 78 Larsson UK, 650, 652, 665 **LARTEY R. 27-49** LaRue TA, 331, 497, 504 Laskey RA, 40 Lassner MW, 124 Last RL, 55-57 Latché A, 558, 564 Laties GG, 704, 713 Latorre R, 409 Laudano AP, 286 Laufs J. 311 Laughlin MJ, 71 Lauritis JA, 33 Laursen CRM, 316 Laux T, 678, 684, 685, 691. 692 Lavee S. 60 Lavelle DT, 584, 589, 595 Lavin M. 238 Law SK. 552 Lawler IR, 628 Lawlor DW, 617 Lawrence B, 622, 628 Lawrence EB, 260 Lawrence GJ, 582, 586, 598, 599 Lawrence NL, 446 Lawson EJR, 142 Lawson T. 613

Lawton KA, 91, 92, 538-41.

Lawton MA, 94, 265, 268, 536

551

Lay VJ, 95

Lay-Yee M, 549

Layzell DB, 511

Lazarowitz SG, 34

Lazarus CM, 447

Lanfermeijer FCW, 212

Leach JE, 537, 579, 587 Leadley PW, 628 Leaver CJ. 130 Lebedeva NV, 337, 346 Lebel EG, 309 Le Cahérec F. 408 Lecain DR, 612, 615 Leclerc C, 180 Lee BH, 287 Lee C. 349 Lee DR. 207 Lee E, 312 Lee H-S, 479, 480, 482 Lee JA, 138 Lee JW, 207, 502, 515 Lee MS, 40 Lee S. 46 Lee SY, 286 Lee-Stadelmann OY, 403, 407 Legendre L, 254, 255, 257, 259, 261, 263 Lehman A, 57, 280, 289 Lehmann J, 366, 369, 557 Leigh R. 169 Leigh RA, 199, 209, 212, 214 Leisner SM, 32, 46 Leister D. 587, 594 Leister RT. 579 Lejeune P. 687 Lelandais M, 266, 724 Leloir LF, 82 Lemaux PG. 307 Lemieux B. 463, 465, 466 Lemire B. 124 Lemmers R, 91, 93 Lemoine R, 210, 211 Lenssen GM, 612 Lenton JR, 448 León J. 92, 262, 268, 536, 540 Leopold AC, 169, 176, 464. 484 Leppik EE, 578 Leprince O, 464 Lerbs W. 366, 369, 557 Lernmark U, 114 Leslie JD, 172 Lespinasse Y, 555 Lester DR, 438, 452 Letham S, 693, 694 Leto TL, 257 Leuschner C, 662 Leutz A. 152 Léveille C, 363 Levering CK, 124 LeVier K. 513 Levin DA, 138 Levin JZ, 682-84, 688, 691, 693, 694 Levine A, 254, 257, 258, 261-66, 531, 534, 537, 539, 593, 720

Levine EB, 260 Lewak S. 368 Lewald J. 580, 586, 589, 594, Lewin KF, 612 Lewis C, 309 Lewis JD, 622 Lewis MJ, 440, 441, 444, 445, Lewis PN, 559 Lewy AJ, 329 Levser HMO, 280, 676, 692 Leznicki AJ, 61 Li HM, 311 Li H-O, 305, 309, 411 Li J. 56, 243, 264, 528, 534, 553 Li Q. 36, 704, 709, 711 Li R. 334 Li Y-Q, 474, 475, 477, 479, 690 Li Z-S, 266 Liang R, 497 Libbenga KR, 95 Libessart N, 71, 77, 79, 83 Lichtenstein M, 312 Lichtenthaler HK, 434 Lichtner FT, 212, 213 Lichtscheidl IK, 468, 469 Liden AC, 715 Lieberman M. 557 Liebisch H-W, 366, 369, 557 Lifschitz E, 687, 690 Lightner J. 365, 373 Lin ECC, 409 Lin H-Y, 332, 348 Lin JJ, 309, 463 Lin S. 183 Lin T-Y, 591, 593 Lin W, 198, 213 Lin Y-K, 471 Lincoln C, 57, 681, 685, 687, 690, 695, 696 Lincoln CA, 280 Lincoln JE, 527 Lind JL, 475 Lindberg Möller B, 649 Lindhout P, 688 Lind-Iversen S, 562 Lindsey K, 314, 483 Lingle SE, 556 Linnane AW, 706 Linskens HF, 464, 474, 477, 479, 556, 559 Linstead P. 152, 158, 282 Linthorst HJM, 91, 92 Linzer RA, 704 Lipe JA, 556 Lipsick JS, 152 Lischka FW, 169 Lister C, 145

Lister DL, 501, 503, 504, 509 Lister RM, 38 Liu B. 471 Liu DH, 110, 367, 372, 373 Liu GQ, 477 Liu K-C, 70 Liu XJ, 367, 375 Liu X-O. 469 Liu Y, 336, 337, 339, 341 Livanova GI, 509 Livingstone DM, 306 Livne A, 407 Llewellyn DJ, 238, 262 Lloyd AM, 100, 130, 143, 153-56, 159, 266, 298 Lloyd CW, 166, 172, 173, 178, 281, 471 Lloyd JR, 75, 78, 79, 610 Lochhead LP, 101 Logemann E, 252, 253, 602 Loh Y-T, 258, 530, 537, 583, 593 Lohman K. 498 Lois AF, 239, 291 Lomas M, 719, 720 Lombardi L. 688 Lommel SA, 33, 34, 36 Long J, 681, 685, 695, 696 Long JA, 678, 681, 685, 691 Long M, 533 LONG SP, 609-39; 610, 613, 615-18, 620-23 Long SR, 170, 467, 496, 578 Longo VD, 720 Loniello AO, 529, 579 Lönneborg A, 69 Lonsdale DM, 481, 483 Lopez R, 359, 367 Lopez-Barneo J. 240 Lopez-Casillas F, 120 López-Díaz I, 452, 453 López-Juez E. 450 Lorbeth R. 366 Lord EM, 474, 475, 478, 557 Lorimer GH, 627 Lorkovic ZJ, 647 Loros JJ, 340, 416 Lörz H, 313 Lotan O. 309 Lotan T. 91, 92 Louis CF, 409, 502, 515 Louvion J-F, 100, 101 Louwerse J, 507 Lovell PH, 556 Lovell PJ, 556 Low PS, 254, 255, 257, 259, 261, 263, 362, 720 Lowe B, 156, 681 Lowell CA, 201 Lowrey KB, 477 Lowrey PL, 329

Lowry CV, 239 Lu G. 239 Lubarsky B, 279, 280, 283 Lubben M, 706 Lucas WJ, 29, 30, 32-39, 41-43, 45, 166, 167, 198, 200, 203, 205, 207, 209, 225, 240, 696 Lucocq JM, 40 Ludevid D. 413, 416, 421 Ludwig SR, 154 Ludwig-Müller J, 56, 60, 61 Luehrsen KR, 311 Luhrmann R. 39 Lukaszewski TA, 549 Lukat GS, 287 Luo X, 120 Lurin C, 416, 417, 421 Lüscher B. 152 Lushuk JA, 226 Lustig A, 656-58 Lüthi E, 69, 71 Luthjens LH, 411 Lutze JL, 614, 615, 627 Lux SE, 40 Luxem M, 359, 367 Luxmoore RJ, 627 Lycett GW, 384 Lydakis-Simantiris N. 646 Lydiate D, 119 Lynch JM, 224, 226 Lynch RM, 172 Lynnes JA, 708 Lyon MK, 656, 662, 663 Lyttleton P. 496, 498, 499, 501.

M

Ma T. 409, 412, 415 Maas C, 311 Mabrouk GM, 287 MacAlpine DM, 230, 233, 234, 237, 238 Macchia G, 591, 592 MacDonald HR, 232 MacDonald RC, 231 MacDougald OA, 130 Macey RI, 405, 414, 415 Macfie SM, 226 Machado RD, 29 Mache R, 479, 481, 483 MacKenzie S, 124, 718, 721 MacMillan J. 432, 433, 435. 440, 441, 445-48, 452 Maddelein M-L, 77, 79 Madgwick P, 616, 618 Madlener JC, 537, 593 Madore MA, 198, 209

Madsen E, 615

Maeda T. 291, 578 Maeshima M, 409, 411, 421 Maetzke T, 92 Magasanik B. 503 Maggio A, 420, 423 Magnus V. 61 Magnuson NS, 471 Mahadevan S, 59 Maher BR, 55 Maher EA, 526 Maheshwari P. 552 Maheswaran G. 310 Mahoney DJ, 55, 56 Majer RJ, 499, 509 Malamy J. 91, 93, 540 Malayer JC, 688 Maldiney R, 688 Malhó R. 168, 169, 174, 178, 184, 472, 473 Maliga P, 299, 311, 316 Maliga ZS, 316 Malkin R, 646, 650 Man B, 329 Mandak V. 298 Mandaron P. 479, 481, 483 Mandava NB, 467 Mandel T. 463 Mander LN, 447, 450, 453 Manian S. 499 Manners DJ, 80 Manners JM, 307 Mannervik B, 265 Manning K, 564 Mansager ER, 451 Mansfield JW, 264, 534, 707 Mansfield TA, 170, 627 Mapelli S, 688 Marchitelli L. 389 Marcker KA, 515 Marcotrigiano M, 688, 689 Marcus F. 716 Marcus S. 288 Marianne T. 71 Marineau C. 53 Marino BD, 627 Marios E, 579 Mark GE, 286 Markley JL, 402, 406 MARKS MD, 137-63: 138. 140-43, 145, 149, 151-53, 155-59 Marmey P, 310 Marocco A, 152 Marquardt J, 646, 664 Marquez J, 474, 477, 479, 481 Marr K. 94, 95 Marr KM, 656, 662, 663 Marrs KA, 266 Marsault R. 180 Marsh DR, 316, 317

Marsh SD, 504

Marshall C. 286 Marshall J, 75, 76 Marshall JD, 624 Marshallsay C, 394, 395 Marsolier MC, 481 Marten 1, 611 Martich J. 309 Martin BA, 123, 262, 718, 726 MARTIN C, 67-87; 69-72, 75-78, 81, 152, 157, 158 Martin DN, 438, 448, 449, 452 Martin GB, 258, 503, 530, 537, 579, 583, 584, 586, 589. 591, 593, 595-98 Martin SJ, 264, 535 Martinell BJ, 307, 310, 313 Martinez-Drets G, 498, 499 Martínez-García J. 450 Martini N, 110, 126, 314 Marty F, 407, 421 Marty-Mazars D, 407, 421 Marumo F, 410-12, 417 Marzuki S. 706 Mascarenhas JP, 462, 468. 469, 474, 478-81, 552, 555, 559 Mascarenhas NT, 479 Masel NP, 307 Masiarz FR, 716 Masle J, 612, 615, 618, 619 Maslvar D, 91 Masner P, 538 Masner W, 91, 92 Mason HS, 301, 366, 367, 369 Massimino J. 615 Masson J, 309 Masson P, 180 Masson PH, 240 Masterson R, 312 Mastronarde DM, 656, 663 Masucci JD, 146, 154, 282 Masuko M, 720 Masuta C, 263 Matamala R, 622, 627, 628 Mathai JC, 406, 408, 423 Mathieu C, 416 Mathur G, 552 Mathur J. 310, 311 Maton J. 559 Matson PA, 610 Matsubayashi T, 330 Matsui M. 158 Matsuno R, 113 Matsuoka M. 91, 690 Matsuura Y, 597 Mattaj IW, 40 Mattana M. 228 Matthay MA, 412 Matthews DE, 526 Matthews PS, 526

Matthys-Rochon E, 554

Mattoo A. 278 Mattoo AK, 286, 288, 557 Mattson KG, 624 Mattson O. 309 Mattsson J, 688 Matzke AJM, 300, 312 Matzke MA, 300, 312 Mau CJD, 437, 438 Mauch-Mani B, 267, 538 Maule AJ, 33 Mauney JR, 612, 615 Maunsbach AB, 408, 409, 415 MAUREL C, 399-429; 400, 408-10, 412, 414-17, 419, 421 Maury J. 130 May GD, 369 May MJ, 254 Mayak S. 548, 556 Mayama S, 261 Mayer AM, 624, 625 Mayer JE, 258, 266 Mayer KFX, 678, 685, 691, 692 Mayer U, 679, 680, 684 Mayerhofer R, 314 Mayeux HS, 627 Mayfield SP, 720 Mazars C, 180 Mazzola EP, 529 McAinsh MR, 170, 184 McArdale HF, 314 McBride KE, 311 McBride MB, 464 McCabe DE, 302, 307, 310, 313 McCain DC, 402, 406 McCallan NR, 230 McCann MC, 475 McCarty DR, 239, 593 McClung CR, 329 McConn M, 361, 367, 372 McConnell J, 678, 684, 685, 688, 689 McCormick SM, 464, 467. 478, 482-84, 559, 596 McCubbin A, 465, 482 McCurry SD, 8, 10 McDaniel CN, 687 McDermott G, 652 McDermott TR, 497, 498, 506 McDonald AJS, 615 McDonald AR, 471 McDonald D, 154 McDonald R. 202, 212, 213 McDowell JM, 471 McElroy D, 305, 312, 318 McFeeters RL, 656, 662 McGarvey DJ, 437, 438 McGloin M. 646 McGrath RB, 184 McGurl B, 360

MCINTOSH L, 703-34: 647. 704, 706-9, 711-13, 716-18. 721, 722, 725, 726 McIntyre KR, 648, 649 McKay IA, 497-99 McKay MJ, 452 McKean AL, 130 McKee IF, 615 McKee KL, 241 McKelvie A, 142 McKeown M. 600 McKnight SL, 580 McLean BG, 33, 34, 42, 182, McLean LLT, 704, 709, 711 McMahan CJ, 582, 591, 592 McMullen MD, 309, 311 McMurtrie RE, 622 McNaughton SJ, 615 McNeil D, 194, 199 McNeil P. 167 McPherson PH, 646, 647 McPherson SL, 311 McPhie P, 653, 656-58, 662 McRae DG, 497, 499-501 McWhinnie E, 498 Meagher RB, 471, 480, 481 Medford JI, 675, 678, 681, 685, 690, 691 Medrano H, 615, 616 Medville R, 33, 34 Meeks-Wagner DR, 696 Meeuse BJD, 704, 707 Meguro H. 497 Mehdy MC, 252, 254, 261, 530 Mehlhorn H, 266 Mehrota B, 141 Mehta AY, 584, 595 Meijer M, 709, 711 Meikle PJ, 474 Meiners S. 30 Meinke DW, 679 Meins F, 288 Meisner J. 138 Melan MA, 364, 531 Melander WR, 707, 712, 718 Melaragno J. 141 Melchior F, 40 Melillo J. 610 Melillo JM, 627 Melis A, 646, 649, 650 Melli M, 591, 592 Mellor RB, 496 Melroy DL, 413 Memelink J. 92 Menaker M, 329 Mendelssohn IA, 241 Menegus F, 228, 230, 231 Mercier C, 78 Merida J. 254, 261 Merida JR, 720

Merino J, 624 Merlin E, 479, 481, 482 Mermelstein J. 480 Merrick MJ, 503 Merrick WC, 172 Merryweather A. 100 Merten A. 268 Mertens E, 232 Meshcheryakov A, 205 Meshi T, 41, 45, 578 Messing J, 311 Messmer S, 498 Metraux JP, 541 Mett VL, 101 Metz J. 124 Metzger JD, 451, 452 Meudt WJ, 61 Meuwly P. 541 Meyer C. 71 Meyer CP, 615, 627, 628 Meyer D, 241 Meyer H, 82 Meyer HE, 647 Meyer J-M, 513 Meyer M, 264, 265, 592 Meyer P. 312 Meyer R, 40 Meyer RC, 551 Meyerowitz EM, 278, 283, 285, 682, 683, 685, 688, 691-94 Meyers J, 409, 412, 416, 421, 423 Mezitt LA, 39 Miao G-H, 410 Miaullis AP, 228, 231, 232 Michael MZ, 562 Michalczuk L, 54, 56 Michalowski CB, 408, 409, 413, 416, 419 Michaud D. 201 Michaud N. 39 Michel H, 646, 647, 652, 662 Michelmore R, 576, 579, 598, 602 Michiels K, 58 Midland SL, 529 Miernyk J, 122 Miersch O, 359, 367 Miflin BJ, 92 Miki K, 646, 652 Miki N. 720 Milat M-L, 254, 261, 264 Milburn JA, 194, 200, 210 Milford GFJ, 199 Milham PJ, 627 Millar AH, 225, 511, 704, 706, 712, 715, 716, 718, 721, 722, 726 Millar AJ, 184, 329, 334, 349 Millar RL, 707

Miller CO, 685, 689 Miller DD, 169, 470, 472, 473, 477 Miller DK, 363 Miller FR, 450 Miller GJ, 648, 649 Miller HI, 315 Miller JH, 498 Miller KR, 648-50, 653, 656 Miller LS, 329 Miller RW, 497, 499-501 Miller S. 588 Milliman CL, 265 Millineaux PM, 331 Mills AD, 40 Milon A, 404, 407, 416 Milthorpe FL, 192, 624 Mimura T, 415 Minagawa N, 704, 706-8, 711. 718, 720 Minamikawa T. 310 Minchin FR. 497 Minchin PEH, 192, 194, 199, 200, 202, 204-6, 208, 209, 211, 213, 215, 360, 365 Mindrinos M, 531, 580, 586. 589, 597 Mingo-Castel AM, 367, 369 Miquel M. 362 Mirkov TE, 409, 411, 413, 416 Miroschnichenko NA, 45 Misawa N. 436 Mischke CF, 254, 259 Miséra S, 140, 141, 143, 145. 146, 148, 149, 151, 154, 158, 159, 679, 680, 684 Mishoe JW, 615 Mitcham JL, 582, 591, 592 Mitchell B, 138 Mitchell R. 616, 618 Mitchell RJ, 624 Mithöfer A. 53, 59, 359, 367. 368 Mitra A, 311 Mitra AK, 411 Mitsuhashi S, 663 Mitsui A, 331, 346, 347 Mitsukawa N, 597 Mitterman I, 471 Mittler R, 243, 263, 536, 537 Miura Y, 255 Miyake T. 472 Miyamoto K, 356, 368 Miyanishi M. 394 Miyao M. 646, 647 Miyata T, 591 Miyazaki M. 172 Miyazawa S, 591 Mizoguchi T, 282 Mizuno K, 78 Mizutani A, 720

Mo Y. 467, 477, 557 Moan El. 678, 681, 685, 691 Mobley WC, 243 Mock N. 254 Mock NM, 254, 259 Modena SA, 467 Moehlenkamp CA, 54, 152 Moezer TJ, 94 Mogensen HL, 552, 554 Mohana Rao PR, 552 Mohandas N, 406, 408, 423 Mohan Ram HY, 552 Mohanty B. 230 Mol JNM, 301, 467, 481, 683, Mòl R, 554 Moller IM. 709, 716, 727 Moloney MM, 367, 372 Monk BC, 509 Monk LS, 231, 235 Monnens LAH, 423 Monroy AF, 232 Monson EK, 239, 291 Montagu MV, 540 Monteiro AM, 60 Montgomery LT, 170 Montibeller J, 178, 179 Monz CA, 612, 615 Moodie SA, 286 Mooney HA, 610-15, 628 Mooney M, 154 Moorby J, 192-94 Moore AL, 624, 704, 706, 709. 711, 714, 715, 718, 721, 727 Moore EDW, 172 Moore H. 300 Moore MS, 40 Moore PH, 200, 204, 205, 207, 209 Moore-Ede M. 329 Mor Y, 550, 556, 561 Moran P. 91 Moreau M. 180 Moreau S. 513 Morel F, 255, 257, 260 Morel G, 408 Morgan CJ, 116 Morgan JA, 612, 615 Morgan PW, 240-42, 278, 282, 285, 289, 450, 556 Mori H, 563 Mori S, 37, 45, 406, 408, 423 Mori T, 346, 347 Morin F, 615 Morisato D. 591 Morison JIL, 611, 615 Moritz RL, 475 Moritz T, 54, 441 Moroianu J. 41 Moroney JV, 8, 10, 18 Morrell S, 227, 233, 237

Morris E, 653, 654, 656, 658 Morris P-C, 685, 691 Morris RO, 52, 53 Morrish F, 310 Morrison DK, 286, 287 Morrison NA, 409, 513 Morse A, 538 Morse DS, 334 Mortimer M, 498 Moscatelli A, 470, 472 Mösinger E, 385, 387, 390 Moskalenko AA, 662, 663 Moss DN, 612 Motovoshi F, 578 Mott KA, 611 Motta C, 416 Mottonen JM, 283, 287 Mouille G, 79 Moulds JJ, 423 Moussatos VV, 528 Mousseau M. 624 Moussian B, 684 Moustaid N. 130 Moyer M, 538 Moyle WR, 588 Moynahan ME, 314 Movnihan MR, 718 Mu JH, 479, 480, 482 Mudd JB, 114 Muehe M. 622, 628 Mueller G, 102 Mueller-Uri F, 367, 372 Muench DG, 232 Mu-Forster C, 68 Muir RM, 559 Mujer CV, 237 Mukumoto F, 387, 389, 391 Müller A. 59, 154, 158, 159 Muller G. 94 Muller KJ, 690 Muller M. 463-65 Müller MJ, 357, 358, 360, 372 Müller R. 559 Müller-Rober BT, 68 MULLET JE, 355-81; 358, 359, 363, 364, 366-72, 374 Mumma RO, 61 Munch E, 42 Munch S. 538 Mur L, 267 Mur LAJ, 268, 481, 539 Murakami T, 91 Murakami Y, 440 Murata N. 646, 647 Murata Y, 612 Murfet IC, 435, 446, 708 Murgia M. 180, 182, 183 Murofushi N, 435, 437, 440, 444, 450, 452 Murphy DJ, 110, 126, 466

Morris DR. 311

Murphy PJ, 439 Murphy R, 198, 204, 213 Murphy TM, 257, 531, 535 Murray DR, 299, 623, 624 Murray RK, 169 Muschietti J, 464, 482-84 Musgrave ME, 484, 624, 708 Mushegian AR, 30 Musselman LJ, 192, 203 Mutschler MA, 138 Myatt SC, 98, 99 Myers A, 79 Myers AM, 80 Myers AM, 80 Myers MP, 329, 349

N

Nacry P. 58 Nadeau JA, 548, 549, 551, 553, 557, 558, 561, 564, 566 Nafziger ED, 615 Nagano Y, 113 Nagata T. 95, 172 Nagel C. 467, 477, 557 Nair H, 550, 551, 564, 566 Nakajima H, 268 Nakajima N. 563 Nakajima T, 394 Nakamura K. 159 Nakamura S, 37, 45 Nakamura Y, 79, 80, 115, 120 Nakano M. 720 Nakata DA, 439 Nakata PA, 68, 71 Nakatani Y. 404, 407, 416 Nakayama I, 447 Nakayama M, 450, 452 Nakayashiki H. 261 Nakazato K, 656, 658, 659, 661, 662 Nanba O, 646, 662 Napoli C. 687 Narasimhan ML, 367, 372, 373 Narasimholu S, 157, 158 Narasimhulu SB, 305, 318 Narvaez J, 367, 372 Narvaez-Vasquez J, 360, 367, Nasrallah JB, 583 Nasrallah ME, 583 Naumann M. 40 Nawrath C, 122, 301 Navar S. 333, 345 Naylor G, 268, 539 Naylor JM, 675 Nederlof MA, 166, 167, 176 Negrotto D, 91, 95, 267, 530, 531, 538, 539 Negrutiu I, 299 Nehrbass U, 40 Neill SJ, 254, 257, 263

Neljubov D. 278 Nellen A, 363 Nelson CD, 624 Nelson D. 114 Nelson JS, 124 Nelson OE, 79 Nelson TA, 704 Nennstiel D, 254, 259 Nerson H, 226 Neuenschwander U, 267, 538, 540, 541 Neuffer MG, 54, 56, 152, 528, 689 Neuhaus G, 184, 299 Neuhaus HE, 72 Neuhaus JM, 311 Newbigen E. 301 Newman T, 119 Newmeyer DD, 40 Newsholme EA, 118 Nguven L. 30, 36, 38, 39, 41, 43, 167, 696 Ni W. 526 Nichols DW, 286 Nichols R, 550, 556, 557, 561 Nicholson WV, 653, 656, 658 Nickels RL, 706-8, 718, 721 Nicolas MT, 180 Niderman T, 367, 372 Nie DT, 477 Nie GY, 615, 617, 618, 620-22 Nie X-V, 41 Nie XZ, 239 Niebel A, 540 Nieder M, 201, 210 Niedz RP, 182 Nield J. 646, 650, 651, 653, 654, 659, 661, 664 Nielsen MT, 372 Nielsen S. 408, 409, 415 Niemietz C, 404, 412 Nieters A. 40 Nigg EA, 39 Nigovic B, 61 Nii N. 207 Nijkamp J, 129 Niklas K. 199 Nikolau BJ, 113, 116, 119, 130 Nilsen S. 615 Nirunsuksiri W. 513, 515 Nishida E, 282 Nishida Y, 589 Nishimune Y, 183 Nishimura M, 409, 411, 416, 418, 662, 663 Nishimura Y, 360, 367 Niwa Y, 182, 183 Nixon BT, 503, 504 Niyogi KK, 56

Nobel PS, 615

Noda K, 152, 158

Noher de Halac I, 552 Nojiri H, 360, 367, 452 Nonhebel HM, 52, 54, 58 Norby RJ, 612, 615, 627 Normanly J. 52, 56, 59 Noronha-Dutra AA, 261 Norris DM, 138 Norris KH, 552 Northcote DH, 116 Noueiry AO, 34, 36 Novacky A, 263, 264 Nugent JHA, 647 Nunnari J. 727 Nürnberger T, 252-54, 259, 602 Nye G, 267, 530, 531, 538, 539 Nyns EJ, 704, 706

0

Oakes MP, 696 Obenland D, 708, 718 Ober ES, 224, 226 Oberbauer SG, 612, 615 Obermeyer G, 169, 472 O'Brian MR, 499, 509, 512 O'Brien AP, 483 O'Brien TP, 207 O'Connor-Sanchez A, 300 Odom WR, 664 O'Driscoll D, 469 Oechel WC, 615, 622, 628 Oeller PW, 527, 562 Oelmuller R, 647 Oertli JJ, 463, 550 Oettmeier W. 647 Offler CE, 192, 194, 195, 199-202, 207, 208, 210, 211, 213 O'Gara F, 498, 499 Ogata K, 407, 414, 415 Ogata N. 79, 80 Ogawa S, 435, 440 Oh W. 113 O'Hara GW, 504 Ohashi Y. 91, 259, 360, 536, OHLROGGE JB, 109-36; 110, 113, 115-22, 124-28 Ohme-Takagi M, 288 Ohmiya A, 95, 262 Ohnishi S. 589 Ohshima M. 91 Ohta H, 363, 364 Ohta S, 305, 309, 310, 663 Okabe M. 183 Okada K. 688 Okada S, 118 Okada Y, 41, 45, 578 Okamoto M, 360 Okamura MY, 646, 647, 652 Okane DJ, 182 Okayama S, 662

Okita TW, 68, 70, 71, 385, 387, 388, 391 Okkels FT, 309 Oldrovd GED, 584, 589, 596 Olive J. 646, 649 Olive MR, 238 Oliver KJ, 207 Olsen LD, 439 Olsen O-A, 69-71 Olsson O, 54, 62 Olszewski N. 57 Oltvai ZN, 265 O'Malley BW, 104 Onckelen HV, 690 O'Neill EG, 612, 615, 627 O'Neill LAJ, 592, 597 O'Neill RE, 41 O'NEILL SD, 547-72; 548, 549, 551-53, 556-61, 564, 566 Ong TK, 550 Onge LS, 104 Ooms G. 93 Oostergetel GT, 74 Oosumi T, 597 Oparka KJ, 36, 45, 182, 183, 192, 198-201, 205, 208, 210 Opas E, 363 Oppenheimer DG, 138, 143, 149, 152, 153, 155, 157-59 Opperman CH, 413, 416, 422 Opsomer C, 94 Ordentlich A, 704, 718 Oresnik IJ, 511 Ori N. 92 Orlandi EW, 252, 254, 259, 262, 263, 535, 536 Orr A. 687 Ortega-Calvo J-J, 348 Ortiz W. 646, 650 Orudgev E, 259 Osborne BA, 535 Osborne CP, 616, 620 Osman TAM, 33 Osmond B, 727, 728 Östin A, 60 Ota IM, 291 Ota Y, 444 Otha H, 258 Otto J. 169 Ottonello S, 266 Ourisson G, 404, 407, 416 Ousley A, 349 Ou Yang L-J, 499-502, 505, 506, 510, 511 Overall RL, 29 Overdieck D, 612 Overoorde PJ, 213 Ow DW, 310, 312 Owen DJ, 447

Owens LD, 690

Owensby CE, 612, 613, 615, 624, 628 Ozga JA, 453

P

Packer L, 720

Packman LC, 662 Pacovsky RS, 119 Padayatty JD, 394 Paddock ML, 646, 647 Padgett HS, 182, 183, 578, 582 Padgette SR, 301 Paech C, 8, 10 Paetkau DH, 224, 230 Paganelli CV, 405, 415 Page RA, 118 Pais MS, 168, 169, 174, 184, 472, 473 Paiva NL. 266 Pakrasi HB, 647 Palese P, 41 Palet A, 624, 625, 726 Palevitz BA, 471 Palikaitis P, 34 Palmer JM, 707, 714 Palmer R, 262, 264, 531, 534, Palmgren G. 309 Palukaitis P. 36, 394 Palva ET. 538 Palva TK, 538 Pan D. 79 Pan YB, 688 Panbangred W, 393 Panoff J-M, 339 Paolillo DJ, 557 Paparozzi ET, 143, 153, 155. 156 Pape ME, 120 Papiz MZ, 652 Pardi D, 537 Pargent W, 504 Parikh V, 349 Paris N. 417 Parish RW, 170 Park HH, 266 Park KS, 498 Park KY, 551, 562, 564 Park M-H, 184 Park RB, 648 Park SK, 302 Park TK. 363 Park WD, 369 Parker C. 94 Parker J. 583 Parker MG, 40 Parkinson JS, 283 Parks DW, 685, 687, 688 Parks TD, 438, 448, 449 Parmar S, 616, 618

Parnet P. 582, 591, 592 Parnis A, 690 Parniske M, 252, 253, 602 Parry MAJ, 616, 617 Parslow T. 154 Parthasarathy MV, 28, 29, 199 Parthier B, 96, 356, 363, 366. 367, 369, 557 Pascal E. 33, 34 Paschal B. 40 Passioura JB, 416, 419, 420 Pasti L., 180 Pastor J, 627 Paszkowski J. 298, 309, 312, 314, 316 Pate JS, 207 PATRICK JW, 191-222; 192. 194, 195, 199-205, 207-15 Patten CL, 52, 53 Patterson DT, 615 Patton DA, 679 Paul AL. 238-40 Paul M, 616, 618 Paul MJ, 617 Paul W. 479 Paulin A, 551 Paulsen H, 646 Pawley JB, 173 Pawlowski K. 503, 504 Pay A, 259 Paz-Ares J, 152 Peach C, 303, 311 Peacock WJ, 238, 239, 452 Pearce DW, 367, 372, 450 Pearce G. 96, 360, 365, 367, 558 Pearson JA, 613 Pearson JN, 192 Pearson M. 627 Pech J-C. 558, 564 Peck SC, 563 Pecoraro VL, 646 Pecsvaradi A, 37, 45 Peek JW, 94 Peet MM, 615 Peet RC, 316 Peeters AJM, 443, 449 Pelacho AM, 367, 369 Pelech SL, 287 Pelham HRB, 585 Pelletier G, 302, 313 Pen S-Y, 345, 346 Pen Y-L, 258 Pena LA, 535 Penña-Cortés H, 356, 359, 360, 363, 365, 367, 373, 375 Pendleton JW, 612 Penfold CN, 366, 367 Peng J. 448 Peng M. 259 Peng Y-L, 364

Pennell RI, 262, 264, 531, 534, Penninckx IAMA, 367, 372, 373 Penon P. 390 Peoples MB, 207 Perata P. 230, 231 Perbal M-C, 696 Percudani R, 266 Perdereau D. 130 Pereira A. 465, 466 Peresta G, 622, 627, 628 Peri A. 309 Perlak FJ, 311 Perrot GH, 54 Perry KL. 394 Perry S. 311 Peschke VM, 232, 238 Peter GF, 562, 646, 653 Peterman TK, 364, 531 Peters DB, 612 Petersen U-M, 592 Peterson JB, 497 Peterson MD, 61 Peterson PA, 138, 688 Peterson T, 152 Petrouleas V, 647 Petrucco S, 266 Pettenburger K. 471 Pettersson R, 615 Pettitt JM, 481, 483 Pfitzner AJP, 91, 92 Pfitzner UM, 91, 92 Pharis RP, 367, 372, 445 Phatak SC, 94 Phillips AL, 408, 413, 416, 438, 443, 444, 449, 452, 453 Phillips GC, 306 Phinney BO, 435, 440, 441. 445, 446, 448, 453 Pi L-Y, 258, 586, 587, 598 Picard D, 40, 100, 101, 154, 180 Picaud A, 120 Pichersky E., 646 Picken AJ, 207 Pickett FB. 280, 282 Piechottka GP, 407, 409, 411 Pien F-M, 70 Pierce J. 8, 10 Pierson ES, 169, 468-75, 477 Pietrzak M. 299 Piffanelli P, 129 Pike CS, 615 Pike DA, 527 Pimienta E, 554 Pineau B, 646 Pines J. 182, 183 Pink DAC, 576, 578, 579, 597. 602 Pinter PJJ, 612, 622, 627, 628

Pinto LH, 329 Pireaux JC, 726 Pirrotta V. 329 Pittendrigh CS, 329, 332, 346 Pizzo P. 182, 183 Plautz JD, 337 Plaxton WC, 722 Ploense SE, 481 Pnueli L. 687 Poenie M. 167 Poethig A, 141 Poethig RS, 687 Poethig S, 282, 677, 678, 681. 684, 689, 694 Poirier Y. 122, 301 Poirson A. 36 Polacco JC, 363 Polisenky DH, 359 Polito VS, 463, 469, 470, 472, 554 Poljakoff-Mayber A, 624 Pollak PE, 467, 557 Pollard MR, 115 Polley HW, 627 Pollock M. 152 Pollock S, 153, 158 Polverino A. 288 Pomeroy K. 226 Ponappa T, 56 Pontailler JY, 624 Ponticos M. 662 Poole AT, 435, 446, 447, 452, 453 Poole I, 613 Poole PS, 499, 505 Poole RJ, 232, 509 Poorter H. 615, 624 Popov VI, 648 Porat R. 550, 561 Porat RA, 561 Porteous JW, 118 Porter GA, 211, 646 Porter KR, 29 Portis AR, 615 Post PL, 178, 179 Post-Beittenmiller D, 110, 113. 117, 118, 122, 124, 128 Pot S, 615 Potgieter GP, 226 Potier BAM, 300, 305, 310, 312 Potikha T, 149 Potrykus I, 299, 300, 302, 305, 309, 316 Potter JR, 615 Potter SL, 91, 538, 539 Pouenat ML, 362 Powell CE, 612, 615, 624 Powers MA, 40 Pozzan T, 180, 182, 183

Pozzi C. 690

Pradet A, 224, 225, 227, 228, 230-33, 236, 237, 241 Prasad BVV, 32-35 Prasad TK, 262 Prasher DC, 180-83 Prat S, 98, 152, 360, 363, 373 Pratt LH, 450 Praznik W. 227 Pregitzer KS, 615, 623 Prehn S, 40 Preiss J. 20, 68, 71, 75, 78 Prendergast FG, 180-82 Prescott AG, 152, 440 Preston GM, 406, 408, 410-12, Preuss D. 463, 465, 466 Prevost MC, 362 Price AH, 264 Price GD, 499-501, 516 Price JL, 329 Priest JW, 706 Priestly DA, 464 Prigge M. 140-42, 145, 156 Primo-Millo E. 453 Primrose SB, 497 Prince SM, 652 Prinsen E, 58, 690 Prior DAM, 45, 182, 183, 198-201, 205, 208 Prior PV, 687 Prior SA, 615, 624 Prioul J-L, 69 Pripbuus C, 130 Pritchard J, 204-6, 208, 213 Proctor JTA, 552 Proebsting N, 448 Proebsting WM, 438, 448, 449 Proksch P. 192 Proudfoot LMF, 387 Pruitt KD, 57 Pruitt RE, 465, 466 Pryor T. 263, 534, 576, 598, 600 Pryor TJ, 598 Przemeck GKH, 688 Pugin A. 254, 259, 261, 264 Pühler A. 498-500 Puigdomenech P. 301 Pulsford AL, 169 Pumfrey JE, 687 Pumiglia K. 287 Pundik S. 228 Puonti-Kaerlas J, 305, 309 Puppo A, 501, 502, 505, 506, 510, 511, 513 Purugganan MD, 154, 158 Purvis AC, 724, 726 Putnam-Evans C, 664 Puyou AG, 233 Puyou MTG, 233 Puype M, 62

0

Qi J, 624 Qian Z, 349 Quail PH, 97, 158, 317, 450 Quatrano RS, 152 Queirolo CB, 664 Queiroz-Claret C, 726 Quest AFG, 287 Quick WP, 620 Quinn PJ, 650 Quispel A, 497, 500

R

Radford J. 29 Radin JW, 615 Radke SE, 127 Radosavljevic M. 80 Radwanski ER, 55, 56 Radyukina NL, 501, 506 Raff MC, 263 Raffard G, 232 Ragg E, 228 Raghothama KG, 367, 372, 373, 551 Raikhel NV, 40, 62, 311 Rajasekhar VK, 268 Ralph MR, 329 Ramahaleo T, 403 Rancillac F. 225 Randall DA, 629 Randall DD, 114 Randolph LF, 677, 679 Rands E, 363 Ranjan R. 368 Rao SNV, 588 Rapp UR, 286, 287 Rappaport L. 438, 450 Raschke K, 611, 614 Rask L, 78 Raskin I, 92, 252, 254, 257, 262, 267, 268, 280, 536, 540, 704, 707, 712, 718 Rasmussen JB, 258, 261 Rasmussen JT, 119 Rasmusson AG, 709, 716 Rastogi V, 500 Rastogi VK, 500, 505 Ratcliffe RG, 228, 230 Ratet P, 498, 503, 504 Rath N, 192 Rathjen JP, 584, 589, 595 Rathore KS, 169 Ratledge C, 121, 123 Raudaskoski M, 472 Ravel JM, 237 Raven JA, 37, 613 Ravnikar M, 367, 369 Rawsthorne S, 114, 116, 497 Ray PM, 405

Raymond P, 224, 227, 230. 232, 236, 237, 241 Raz V. 91, 288 Rea PA, 266, 509 Read E. 527 Read ND, 168-71, 174, 178. 180, 184, 472, 473 Read SM, 463, 469 Rebers M. 452 Rebiere M-C. 331 Recouvreur M. 646 Reddy A, 157, 158 Reddy P, 329 Reddy PS, 394 Rédei GP, 145 Redig P. 98 Reding L, 718, 726 Reed DW, 127 Reekie EG, 612, 615 Rees DC, 652 Reeves AF Jr. 138, 157 Reeves DW, 615 Regan JW, 414 Regenass M, 258, 557 Reger BJ, 554 Reggiani R, 232 Reibach PH, 497, 499, 500 Reichel C, 101, 310, 311 Reid JB, 59, 433, 435, 436, 438-40, 446-50, 452, 453 Reid MS, 549-51, 556-58, 560, 561.564 Reijnders WN, 706 Reijnen W. 481, 483 Reilly AJ, 360, 365 Reinbothe C, 366, 367 Reinbothe S. 366, 367 Reinecke DM, 52, 53, 60, 453 Reinemer P, 588 Reinhold L, 403, 405, 416 Reining F. 612 Reinke H. 662 Reinold S, 602 Reis M. 233 Reiser L, 552, 696 Reitzer LJ, 503 Reizer A, 408, 410 Reizer J, 408-10, 412-15, 419, 421 Rekoslavskaya NI, 54 Ren L. 91, 311 Renault S. 213 Rengel Z, 192 Renger G, 647, 664 Rennie P, 675 Rerie W, 146 Rerie WG, 156, 157 Reuber TL, 531, 533, 595 Reuter S, 255, 263 Reuveni J, 624, 625 Reuveni Y. 726

Rexach M, 40 Reynolds GT, 167 Reynolds PHS, 101 Reyss A, 69 Rhee Y, 369, 375 Rhoads DM, 704, 707, 708, 711, 718, 721 Ribas-Carbó M, 610, 623-25. 715, 721, 722, 726-28 Riber P. 262, 264 Ribnicky DM, 54 Ricard B, 224, 230, 236, 237 Ricci P. 254, 261, 264 Rich PR, 707 Richards C, 562 Richards D, 310 Richards KE, 384, 390 Richardson C. 314 Richardson GS, 329 Richardson JP, 311 Richardson WD, 40 Richberg MH, 601 Richter G, 408, 413, 416 Richter TE, 263, 534, 598, 600 Ricigliano JR, 267 Ricigliano JW, 267 Ride JP, 168, 184 Ridout C, 116 Rieber P. 720 Rienstra J-D, 481 Rieping M, 98 Riesmeier JW, 199 Rietveld E. 299 Rigaud J, 501, 502, 505, 506, 510, 511 Rigoni F, 664 Riley IT, 504 Rinne R. 114 Ripley SJ, 264 Ripoche P. 414 Ripp KG, 213 Rippka R, 331 Rissler JF, 707 Ritchie SW, 298 Ritter C. 533, 595 Ritzel RG, 704, 709, 711 Rivers BA, 169, 472, 473 Riviererolland H. 618 Rivoal J, 229, 230, 234 Rizzuto R, 180, 182, 183 Robards AW, 30, 43 Robert LS, 475 Roberts AG, 182, 183 Roberts DM, 409, 502, 510, 511, 515 Roberts H. 706 Roberts IN, 281 Roberts JKM, 227, 228, 231-34, 237 Roberts K, 36, 152, 281, 282, 475

Roberts MR, 466 Roberts MW, 385, 387, 388, 391 Roberts SW, 612, 615 Roberts TM, 286 Robertson DS, 78, 80 Robertson JG, 496, 498, 499, 501, 504, 509 Robinson DG, 417, 421 Robinson JM, 615, 624 Robinson KR, 169 Robinson NJ, 257 Robinson SA, 726-28 Robinson SJ, 128 Robson AD, 511, 512 Robson PRH, 57 Roby C, 228 Rocha-Sosa M, 300 Rochaix JD, 646, 647 Rochat C, 209 Roche O. 123 Rock CO, 113, 121 Röder FT, 98, 99 Roder K. 130 Rodrigo MJ, 452 Rodrigues-Pereira AS, 559 Roeder RG, 98, 386, 390 Roenneberg T, 348 Roesler K, 113, 124, 127 Roesler KR, 113, 116, 121 Rogers HH, 612, 615, 624 Rogers JC, 417 Rogers KR, 261, 263, 264 Rogers SG, 298 Rögner M, 653, 659 Rohmers M. 434 Rojahn B. 363 Rokosh DA, 504 Rolfe BG, 496, 588 Rolleston FS, 116 Roman G, 279-81, 283, 285, 286, 288 Romano CP, 57 Romano N. 690 Römer S. 439 Romme Y, 538 Rommens C, 152 Rommens CMT, 301, 584. 589, 596 Ronda JM, 329 Rongen G, 469 Ronson CW, 497-99, 503, 504 Rood SB, 450, 451 Rooijen GJH, 367, 372 Rooke LM, 314 Rosahl S. 101 Rosbash M, 329, 349 Rose AB, 56 Rose RC, 278 Rosenberg MF, 653, 656-58, 662

Salmeron JM, 584, 589, 595.

Rosenberg N. 299 Rosendahl L, 501, 502, 506, 512 Rosendal J. 119 Rosetto M. 592 Ross AH, 307 Ross JHE, 466 Ross JJ, 433, 435, 436, 438-40. 446-50, 452, 453 Rossbach S. 498 Rossi GL, 266 Rossi R, 182, 183 Roth E. 494, 496 Rothe K, 200, 209, 210 Rothenberg M. 279-81, 283, 285, 286, 288 Rothenfluh-Hilfiker A, 349 Rother C, 662 Rothman DL, 116 Rottmann WH, 562 Roughan G, 117, 118, 122 Roughan PG, 111, 114, 115, Roussel M. 152 Rousselet G. 414 Routier F. 75, 77 Rouwendal GJA, 562, 563 Roveda-Hovos G, 280 Rowland LJ, 237 Rowland-Bamford AJ, 612, 615 Rowney FRP, 498, 499 Roy S. 362 Rozema J, 612 Rozema R, 612 Ruan Y-L., 201, 210, 211 Ruban AV, 646 Rubin AB, 648 Rubin LB, 648 Rubinfeld BZ, 309 Rubinstein AL, 474, 477, 479, 481 Rueb S. 311 Ruess W, 91, 92, 538 Rüffer M, 267 Ruffle SV, 647 Ruiz RAT, 679, 680, 684 Rumpho ME, 224, 226, 230, 231, 235 Runion GB, 615, 624 Running MP, 685, 692 Ruppel G, 409, 412, 416, 421, Russell DA, 232, 236 Russell DR, 307 Russell SD, 552, 555 Russin WA, 199 Rustérucci C, 254, 261, 264 Rustin P. 726 Rutherford AW, 646, 647 Rutten T, 468, 469 Ryals J, 91, 252, 267, 539 Salisbury FB, 614

Ryals JA, 92, 263, 531, 534, 540, 541 Ryan CA, 96, 360, 362, 365-67, 372, 373, 375, 557, 558 Rvan K. 207 Ryan KG, 199, 200, 209 Ryerson DE, 264, 534 Ryle GJA, 612, 615, 624

Saab IN. 236-38 Saarinen M. 722 Sabbagh I, 688 Sabljic A, 61 Sabnis DD, 38 Sabourin JR, 706, 708 Sabova L. 239 Sacalis J. 560 Sachs MM, 232, 236, 238, 240, 242 Sack RL, 329 Sacks WR, 254, 259 Sadka A, 367, 369, 371, 374 Sadler IH, 260 Sadler NL, 198 Sadowski S. 363 Saedler H, 152, 696 Saenger W, 652, 663 Saez L, 329 Safadi F, 157, 158 Safford R, 128 Sagawa Y, 552 Sage RF, 611-13, 615, 617, 620 Saglio PH, 198, 224, 225, 227, 230, 233-37, 241 Saier MHJ, 408-10 Saindrenan P, 531, 538 Saint-Ges V, 224, 228, 230, 236, 237 Saito A, 690 Saito H, 291, 305, 309, 310 Saito K, 123 Saito T, 41, 437, 452 Saito Y, 287 Saka H, 435, 446 Sakajo S. 704, 706-8, 711, 718, 720 Sakaki T, 123 Sakamoto M, 646 Saker LR, 240, 242 Sakihama Y. 266 Sakurai A, 435, 437, 445-47, 450, 557 Sakuth T, 37, 45 Sala OE, 612, 615 Salamini F, 152, 263, 587, 594 Salanewby G, 180 Salati E, 610 Salbach P, 362

596 Salminen SO, 505 Salmon S. 210 Salom CL, 505, 506 Salser SJ, 101 Saltveit ME, 226 Saltveit ME Jr. 278, 282, 285, 289 Sampson MB, 54, 56 Samuelsson G. 708 Sánchez RA, 416 Sánchez-Beltrán MJ, 452, 453 Sanchez-Casas P. 91, 93, 267, Sanchez-Serrano JJ, 91, 96, 366 Sandal NN, 515 Sandberg G, 54, 60, 62 Sanderfoot AA, 33, 34 Sanders D, 232 Sanders LC, 478, 557 Sanders PR, 298 Sandmann G. 436 Sandstrom PA, 537 Sanford JC, 316 San Francisco MJD, 499, 500 Sanger M. 91 Sanghera JS, 287 Saniewski M, 367, 371 Sankawa U, 266 Sano H, 259, 360 Santa Cruz S, 182, 185 Santana P. 535 Santes C, 452 Santes CM, 452 Santini C, 646, 653, 656, 664 Santrucek J, 612, 613 Sanz A, 36, 166 Saravitz DM, 363 Sargent ML, 333 Sarker RH, 422, 465 Saroso S, 497 Sarria R. 305, 318 Sasaki S, 400, 408, 410, 411, 414 Sasaki T, 79, 80 Sasaki Y, 113 Sasek TW, 615 Sass S. 56 Sathish P. 77 Sato S. 335, 346 Sato Y. 682 Satoh H, 78, 79, 80 Satoh K, 646, 647, 662 Satoh S. 281 Satterlee JS, 182 Sauer A, 120 Sauer N, 198, 199, 209, 210, 212, 261 Saul M. 298 Saule S, 152

Sauter JJ, 200 Sautter C, 305, 309 Savage L, 113, 124, 127 Savage LJ, 113, 116, 121 Savin KW, 562 Sawadogo M. 386 Sawhney VK, 467, 687 Saxe JG, 348 Sbicego S. 463 Scalettar BA, 172 Scali M, 470 Scandalios JG, 252, 720 Scanlon M. 695 Scarpulla RC, 727 Scelonge C. 309 Schaaf DJ, 311 Schab J. 363, 367 Schaefer MR, 345, 346 Schafer C. 620 Schäfer E. 392 Schäffner AR, 407, 409, 411. 417, 421 Schaller A. 96, 366 Schaller G. 278, 289 Schaller GE, 284, 285 Schatz DB, 104 Scheel D, 94, 252-54, 259, 602 Scheibe R. 722 Schein RD, 320 Schell J, 101, 110, 126, 265, 298, 312, 314, 503, 504, 541,690 Schellekens GA, 363 Schemske D, 138 Schena M, 100, 153, 154 Schieder O. 308, 309 Schiefelbein JW, 143, 154, 282 Schild D, 173, 176 Schilperoort RA, 92, 299, 316 Schimel D, 610 Schindler M. 30 Schleicher M, 471 Schlenstedt G, 40 Schlesinger WH, 615 Schmalstig JG, 199, 205, 206, 211 Schmeilzer E. 212 Schmelz EA, 360, 363 Schmelzer E, 258, 261 Schmid J. 93 Schmid R, 367, 375 Schmidhalter U. 463-65 Schmidt J. 358 Schmidt RC, 53, 59, 300, 499, 500, 580, 586, 589, 591, 620 Schmidt RJ, 688, 689 Schmitt MR, 198 Schmülling T. 98, 99 Schmulling T, 690 Schnable PS, 78, 436, 438 Schneeberger RG, 685, 695

Schneegurt MA, 333, 345 Schneider DS, 591, 593 Schneider G. 358 Schneider K. 282 Schneider M. 498 Schneider TD, 264 Schobert C, 37, 45 Schonbaum GR, 704 Schönfeld M, 646, 647 Schoolnik G. 36 Schöpke C. 310 Schoumacher F, 33 Schramm RW, 505 Schreck R, 262, 264, 265, 592, 720 Schroder HC, 152 Schröder WP, 647 Schroeder JI, 169, 408, 409, 412, 414, 415, 419, 421 Schuber F, 364 Schubert KR, 502, 505 Schubert WD, 652, 663 Schuch R. 121 Schuler I, 404, 407, 416 Schuller HJ, 125, 130 Schulz A, 198, 204, 205, 207. 208, 210 Schulze-Lefert P. 263, 532 Schuster G, 32-34 Schutz A. 125, 130 Schuurmans JAMJ, 211 Schwacke R. 259 Schwartz LM, 535 Schwarz-Sommer Z, 696 Schweiger H-G, 332 Schweiger M. 332 Schweimer A. 441, 445 Schweizer E, 125, 130 Schweizer M, 130 Schweizer P. 384, 385, 387, 390 Schweizer-Groyer G, 40 Schwender J. 434 Schwenen L, 441, 444, 450 Scofield SR, 142, 584, 589, 595 Scolnik PA, 439 Scordilis SP, 470 Scot R, 299 Scott IM, 448 Scott R, 466, 479 Scraba D. 124 Seckler R, 588 Sedat JW, 172 Sedbrook J, 180 Sedbrook JC, 240 Sedgley M. 468 Seedorf M. 53, 59 Seeman JR, 615, 620 Seemann M. 434 Segal AW, 255 Segard-Maurel I, 40

Seger R, 287 Sehgal A, 329, 349 Sei K. 503 Seib PA, 80 Seibert M. 650, 653, 662 Seidenbecher C. 366, 367 Seidler A. 663 Sekimoto H, 438, 444, 449 Sellers PJ, 629 Selman WR, 228 Sembdner G. 96, 356, 358. 359, 366, 367, 467 Sen CK, 720 Sengupta-Gopalan C, 513, 515 Seo S. 259, 360 Serek M. 561 Serikawa K, 681, 685, 695, 696 Serra MT, 36, 166 Serrano JS, 367, 375 Serrano R, 202 Server AC, 243 Sessa G. 100 Seto H. 360 Setter TL, 236, 237 Shacklock PS, 169, 178, 180, 184 Shah DM, 94, 260, 301 Shannon JC, 70, 211 Sharkey TD, 615 Sharkov G, 707 Sharma YK, 92, 262, 540 Sharp RE, 224, 226 Sharpe A, 119 Sharrock RA, 317 Shatters RG, 503 Shaw AL, 32-35 Shaw J. 72 Shaw MJ, 32 Shaw P. 91 Shaw PJ, 172, 173, 178, 281 Shearer G. 498, 505 Sheen J. 182, 183, 620, 621, Shelton CA, 583, 591 Shelton CJ, 452 Shen H. 579 Shen JR, 664 Shen NF, 562 Shen WH, 299 Shen Y. 529 SHENG J, 27-49; 261 Shenk TE, 529 Shepherd FH, 653, 656-58, 662 Shepherd RJ, 299, 301 Sheridan KA, 689 Sherman DM, 333, 345 Sherman LA, 333, 345 Sherriff LJ, 452 Shewfelt RL, 724, 726 Shi L-B, 411, 412 Shibaoka H. 281

Shibata D, 363, 364, 367, 369 Shibles R, 708, 718 Shibuya N. 257, 463 Shida K. 258 Shieh M, 311 Shiga T. 257 Shillito RD, 298, 316 Shimada H. 78, 646 Shimamoto K. 305 Shimmen T, 415, 470, 471, 473 Shimomura S, 62 Shimura Y, 688 Shin S. 716 Shinkarev VP, 647 Shinohara K, 113 Shinozaki K, 282, 408, 413, 416 Shinshi H. 288 Shintani D, 113, 124, 127 Shintani DK, 113, 116, 117, 120, 121 Shipley AM, 169, 472, 473 Shirakawa F, 41 Shirano Y, 364, 367, 369 Shirasu K. 268, 393 Shishiyama J. 258 Shivanna KR, 464 Shokett PE, 104 Shomer NH, 409, 502, 515 Shorley BW, 468 Shorrosh BS, 113, 116, 121, Short BJ, 260 Short SR, 334 Shufflebottom E, 100 Shulaev V. 263, 536, 537 Shulman RG, 116 Sicher RC, 612, 615 Sidebottom C, 75, 76, 81 Sieber H, 417, 421 Siedow JN, 363, 610, 623, 624, 704, 706-9, 711, 715, 721, 722, 727 Sievers A, 403, 420 Sif S, 389 Sij JW. 207 Silflow CD, 481 Silk WK, 198, 203 Sillaber C, 471 Silsbury JH, 624 Silva CM, 182 Silva H. 262, 267, 536 Silva-Cardenas I, 239 Silverman P, 254, 257, 540 Silvey JKG, 330 Simon AE, 46 Simpson AWM, 180 Simpson CE, 555 Simpson D, 367, 372 Simpson DJ, 649, 650 Simpson R, 52, 54, 58 Simpson RJ, 475

Simpson TD, 360, 365 Sims JE, 582, 591, 592 Sims JJ, 529 Sims L, 309 Singh A, 556-58 Singh KB, 262 Singh MB, 481, 483 Singh S, 467 Sinha NR, 38, 167, 681, 690, 696 Sinha SK, 610 Sionit N, 612, 615 Sisler EC, 281, 285 Sitbon F. 62 Sithanandam G, 287 Sivak M, 68, 71, 75, 78 Sivakumaran S, 138, 143, 152, 153 Sjodin C, 142 Skach W, 412 Skach WR, 409, 411, 412, 415 Skaggs MI, 38 Skoog F, 685, 689 Skott H, 119 Skubatz H, 704 Sky RD, 200 Slabas A, 129 Slabas AR, 110, 127 Slack CR, 111, 114, 115, 117, Slater RJ, 387 Slattery J, 169, 176 Slayman CW, 706, 708 Sletten SP, 615 Slocombe SP, 129 Slotboom DJ, 706 Slovin JP, 52-56, 58, 60, 61 Slusarenko AJ, 258, 267, 533, 537, 538 Smalle J, 279 Smart MG, 207 Smigocki AC, 690 SMITH AM, 67-87; 69-72, 75-79, 81-83, 232 Smith AP, 615 Smith BL, 406, 408, 409, 411, 412, 415, 423 Smith CJ, 356 Smith EE, 80 Smith FA, 192, 203 Smith GR, 307 Smith H. 57 Smith HMS, 311 Smith JAC, 200, 210, 258, 261, 540 Smith JM, 612 Smith LG, 679, 682, 689, 691,

694, 696

Smith LM, 38

Smith MJ, 529

Smith MAL, 318, 362

Smith MK, 709, 711 Smith RD, 593 Smith SC, 706 Smith SE, 192, 203 Smith SM, 180 Smith SW, 535 Smith VA, 445-47, 452 Smith-White BJ, 68, 71 Smyth DR, 301, 688 Snaar JEM, 402, 406, 421 Snow M. 694 Snow R. 694 Snustad DP, 481 Socias FX, 615 Sohn A, 314 Soll D, 709, 711, 712 Soll J. 113, 117 Solomon AK, 405, 415 Somers DA, 304 Somers DE, 450 Somers M, 417 Somerville C, 57, 111, 112, 115, 122, 126, 279, 281, 285, 301 Somerville CR, 110, 123, 128, 138, 142, 149 Somerville JE, 498, 503, 505 Somerville SC, 526, 527 Somlyai G, 264 Somssich IE, 258, 261 Song WC, 364 Song W-Y, 258, 586, 587, 598 Songstad DD, 304 Sonnewald U, 68, 127, 201, 207, 301, 541, 620 Sood SK, 552 Soole KL, 704, 718 Sorensen J. 224, 225 Sorenson C, 138 Sorri O. 472 Soskic M. 61 Sossountzov L, 688 Sotta B. 688 Souer E, 683, 684 Sowadski JM, 580 Spampinato CP, 308, 309 Spanbauer JM, 284, 285 Spangenberg G, 299 Spanswick RM, 202, 204, 209, 212, 213 Spanu P. 258 Specker N, 91, 92, 538 Spena A, 690 Spencer W, 612, 615, 624 Spener F, 115, 121 Spiegelstein H, 556, 561 Spijkers J, 481, 483 Spiker S, 309, 312 Sponsel VM, 432, 447, 450, 452 Spray CR, 435, 440, 441, 445, 446, 448

Sprent JL 192 Spyridaky A, 656-58 Stacey G, 494, 496, 502, 510, 511 Stadelmann EJ, 402-4, 407 Stadenberg I, 615 Stadler R, 198, 199, 209, 210 Staehelin LA, 648-50, 653, 662 Stafford AE, 438, 450 Stafford HA, 468 Stahl K. 358 Staiger CJ, 471 Stains JP, 480 Stal LJ, 331, 348 Stalker DM, 311 Stall RE, 597 Stallaert V, 254, 261, 264 Stamer WD, 414 Stanewsky R, 337 Stange N, 387, 394 Stanley CM, 417 Stanley J, 498, 499, 503 Stanton VP, 286 Stark DM, 122 Staskawicz BJ, 252, 279, 301, 527, 530, 533, 576, 578, 584, 595-97, 599, 602 Staswick PE, 96, 359, 366, 367, 369, 371, 375 Staub T. 92 Staxen I, 170 Stayton M, 579 Stead AD, 549, 551, 557, 558 Stearns T, 182, 183 Stec A, 688 Steele SH, 169 Steen DA, 281 Steer JM, 468, 472, 474 Steer M, 468-72 Steer MW, 468-70, 472, 474 Steeves TA, 674, 675, 677, 685, 691 Steffensen DM, 675, 676 Stein JC, 583 Steinbacher S. 588 Steinbi H-H, 314 Steinbiss HH, 101 Steinmann F, 231 Steipe B. 267, 588 Steller H, 263, 264 Stenger DC, 46 Stephens R. 624 Stephenson LC, 367, 369, 370 Steponkus PL, 402, 406 Steppuhn J, 662 Sterk P. 363 Stermer B, 93 Steudle E, 205, 400, 402, 403, 405, 406, 412, 414-16, 418, 420, 421, 423

Stewart CR, 262, 708, 718, 726

Stewart DB, 612 Stewart JD, 615 Stewart RN, 552 Stiekema WJ, 465, 466 Stimart DP, 57 Stinard PS, 78, 593 Stitt M, 72, 115, 118, 127, 207. 232, 620 Stobart AK, 123 Stobart K. 362 Stober-Grasser U, 152 Stock AM, 283, 287 Stock JB, 283, 287 Stöckl D, 435 Stoddart JL, 448 Stoger E, 464 Stolz J, 198, 199, 209, 212 St. Omer L, 615 Stone BA, 474 Stone JM, 593 Stone R. 316 Stoner TD, 94 Stoops J, 115 Storey BT, 704, 707 Storms M. 42 Storz G. 264 Stout DG, 402, 406 Stouthamer AH, 706 Stowers MD, 497 Strack D. 467 Strain BR, 612, 615, 620, 622-24, 708 Strange ME, 225 Strange RN, 261 Strasburger E, 28 Strasser A. 263 Straub PF, 498 Straube E, 580, 586, 589, 594, 597 Straume M, 337 Strauss M, 556, 559, 560 Strauss MS, 559 Strayer CA, 329, 334, 337, 345, 346, 349 Streeter JG, 496, 497, 499, 500, 502, 505, 506, 508, 510 Strickler JH, 176, 177 Strittmatter G. 94 Strnad M. 98 Strobel NE, 531, 533 Strogatz SH, 329 Strommer JN, 237 Strowbridge B, 176, 177 Struhl G. 681 Strum JC, 287 Strydom D, 96, 360, 558 Strzalka K, 416 Stuitje A, 129 Stumpf PK, 116 Sturgill TW, 287 Sturtevant RP, 332

Stussi-Garand C. 33 Stymne S, 123, 362 Styring S, 646, 662 Su W. 359, 366 Suama Y, 113 Suarez-Cervera M, 474, 477, 479, 481 Subbaiah CC, 236, 240, 242, 463 Suda S. 346, 347 Suessenguth K, 555 Sugars JM, 268, 539 Sugimori M. 360, 367 Sugita M. 330, 394 SUGIURA M, 383-98; 330, 384, 386, 392-94 Suire C. 439 Sul SH, 130 Sullivan JH, 615 Sullivan TD, 70, 317 Summerfield RJ, 497 Summers JE, 230 Summut ME, 207 Sun C, 77 Sun L-H. 41 Sun Q, 283, 285 Sun SSM, 301 Sun TP, 436-39, 452 Sun Y, 266 Sundberg B, 60 Sundby C, 649 Sung JM, 615 Sung ZR, 688 Supek F, 239 Sussex IM, 138, 674, 676, 677, 679, 685, 687, 688, 691, 693, 695 Sussman MR, 182, 210 Sutter EG. 56 Suttle J. 278 Suurs L, 78 Suzuki N. 589 Suzuki Y, 441, 446 Svab Z. 311 Svensson B, 646 Swain SM, 435, 436, 439, 440, 447, 452, 453 Swamy BGL, 554 Swanson CA, 207 Sward RJ, 615 Swedlow JR, 172 Sweeney BM, 328, 329, 332, 335, 346 Sweet GB, 559 Sweetser PB, 94 Swick AG, 130 Swoboda I, 471 Sylvestre L 551 Symth D, 159 Syrovets T, 360, 365, 367, 372 Szabo V, 583

Szafran MM, 501, 508-10 Szakacs NA, 706, 708, 718, 719 Szell M, 259 Szeto WW, 503, 504 Sztein AE, 60 Szymkowiak EJ, 138, 677, 688, 693 Szymkowiak G, 694

Tacnet F, 414, 416, 417, 421

T

Tabata K. 662

Tada Y, 690 Tadeo FR, 450 Tae GS, 663 Tagala P. 79 Tageeva SV, 648 Tagiri A, 682 Tai H, 119 Taiz L, 416 Takahara K, 471 Takahashi A, 331, 346, 347 Takahashi E. 647 Takahashi JS, 329 Takahashi M, 441-44 Takahashi N. 369, 435, 441, 444-46, 450, 451, 557 Takahashi S. 663 Takahashi Y, 95, 663 Takahata Y. 79, 80 Takamatsu N, 45 Takeda Y. 77, 78 Takekawa M, 291 Takeoka GR, 314 Takeuchi Y, 409, 411, 418 Takimoto A, 329 Talbert P, 685, 687, 688 Taliansky ME, 33 Talierco EW, 237 Talon M, 435, 436, 443, 444, 446, 450, 453 Tam YY, 56 Tamaki S, 579 Tamaki SJ, 597 Tamura H. 720 Tan SC, 550 Tanaka A, 335, 346 Tanaka CK, 258 Tanaka I, 612 Tanaka K. 183, 342, 363, 364 Tanasugarn L, 167 Tandeau de Marsac N, 331 Tang X, 564, 579, 584, 589, 591, 595 Tang XJ, 470 Tang XS, 646, 662 Tang XW, 477 Tang XY, 551, 564 Tangl E, 28

Tanifuji S, 394 Tanimoto M. 282 Tanksley SD, 286, 309 Tans PP. 610 Taraporewala ZF, 578 Tarlyn N, 467, 557 Tate SS, 414 Tatge H, 77, 78, 82 Tavernier E. 259 Taylor CG, 413, 416, 422 Taylor DC, 127 Taylor DL, 167, 175, 178, 179 Taylor DP, 169, 176 Taylor JE, 170, 184 TAYLOR LP, 461-91; 467. 477, 527, 557 Taylor N, 310 Taylor SS, 179, 264, 580 Taylor W, 334, 345, 346 Taylor WR, 332 Tazawa M, 403, 404, 406, 407, 409, 412, 415, 418, 421 Tebbey PW, 537 Tebbutt SJ, 481, 483 Teeri JA, 612, 615 Teichmann T. 394 Telfer A, 141, 646, 662 Telford JL, 591, 592 Tenhaken R, 254, 257, 258, 260, 261, 263, 265, 266, 530, 534, 539, 593, 720 Ten Have A, 557 Tenning P, 309 Tepfer D, 299 Tepper HB, 685, 689 Terada R. 305 Terada Y, 412, 417 Teramura AH, 615 Terrain DM, 537 Terras FRG, 367, 372, 373 Terry BR, 30, 43 Teskey RO, 624 Tesser GI, 289 Tester M, 169 Tewson V, 612, 615, 624 Thain JF, 360, 365 Theerakulpisut P, 481, 483 Theg SM, 439 Theologis A, 278, 288, 301, 527 Thiel F, 465 Thiel G, 184 Thiel T. 334, 337 Thierfelder H, 506 Thierfelder S, 240 Thilmony RL, 596 Thimann KV, 59 Thomas CL, 33 Thomas CM, 585, 586, 597. 598 Thomas J, 310

Thomas RB, 612, 615, 620, 624 Thomas SM, 624 Thomine S, 240 Thomma BPHJ, 367, 372, 373 Thompson AJ, 98, 99 Thompson CJ, 236, 237 Thompson GA, 127 Thompson GA Jr, 123 Thompson GB, 628 Thompson JE, 299 Thompson WF, 309, 312 Thomsen G. 41 Thomson CJ, 225, 232, 237, 241 Thonat C, 416 Thorbiørnsen T, 69-71 Thordal-Christensen H, 258, 262 Thornber JP, 646, 653 Thornburg RW, 96, 374 Thorne JH, 192, 202, 210, 211, 213 Thorpe MR, 192, 194, 199, 200, 205-9, 211, 213, 215 Thorpe N. 624 Thorpe TA, 306 Tian H-C, 62, 688 Tice-Baldwin K, 152 Tidu V, 646, 653, 656, 664 Tierney ML, 358, 359, 367, 372 Tiezzi A, 468, 472 Timinouni M, 497 Timpte C, 280 Tipker CA, 706 Tirlapur UK, 470 Tissue DT, 615, 620, 622, 628 Tiwari SC, 463, 469, 470, 472 Tlalka M, 169 Tobias CM, 584, 589, 595 Tognon G, 653, 656 Tognoni F, 230 Tokuhisa JG, 262 TOLBERT NE, 1-12; 5, 7, 8, 10, 12, 15-18, 20, 21, 23, 708 Toldeano MB, 264 Tolley LC, 612, 615 Tomizaki T, 625 Tomlinson KL, 78, 79 Tommos C, 646, 662 Tomo T. 646 Tomos AD, 205, 209-11, 215 Tomos D, 204, 208 Tong CB, 559 Tooley MJ, 613 Töpfer R, 110, 126, 314 Topper JN, 647 Torii KU, 597 Tornberj T, 241 Torres MA, 257 Torres-Ruiz RA, 58, 679 Tossberg JT, 436, 438

Touati D. 239 Touraev A. 464 Touraine B, 200 Towill LE, 463, 465 Town CD, 56 Townsley FM, 585 Toyomasu T, 435, 438, 440, 444, 449, 450 Toyoshima C, 656, 658, 659, 661, 662 Toyoshima Y, 647 Traas J, 58 Tranbarger TJ, 369 Traut TW, 580, 589, 591 Travis JL, 481 Trebst A, 646, 647 Tremolieres A, 120, 123 Trentham DR, 184 Trewavas AJ, 168-71, 174, 178, 180, 184, 240, 264, 472, 473 Trimnell MR, 689 Trinchant J-C, 501, 505 Trinh F, 264 Trolier M. 610 Troppmair J, 286, 287 Troster F, 125, 130 Truchet GL, 498 Trudel MJ, 615 Truernit E, 198, 199, 209, 210 Trumpower BL, 706 Trybus KM, 179 Tsai SY, 104 Tsay JT, 113 Tschaplinski TJ, 612 Tseng T-S, 57 Tsien RW, 166, 170 Tsien RY, 166, 167, 170, 179, 187-84 Tsinoremas NF, 337, 339, 342, 343, 346, 348 Tsiotis G. 656-58 Tsuji FI, 182, 183 Tsuji H, 450 Tsuji J. 527 Tsukihara T, 625 Tsunoda H, 53, 59 Tsurumi S, 60 Tsvetkova NM, 650 Tu J. 333 Tu S, 169 Tu Y, 180, 182, 183 Tucker DJ, 688 Tucker EB, 30, 203 Tucker ML, 286, 288 Tucker WQJ, 696 Tully RE, 484 Tuominen H, 60 Tupy J. 479 Turgeon R, 28, 29, 33, 34, 46,

199, 202, 204, 209

Turnbull CGN, 441 Turner AP, 36, 166 Turner DH, 722 Turner GL, 497, 498, 502, 504 Turner IM, 707, 712, 718 Turner JC, 124, 280, 282, 624 Turner JF, 722 Turner JG, 366, 367, 372 Turner R, 311 Turnham E, 116 Turpin DH, 708 Turvey PM, 200, 204, 208 Tuzimura K, 497 Twell D. 478, 479, 482, 483 Twitchin B, 453 Tyerman SD, 403-5, 412, 416, 418, 419, 505, 507, 508, 511 Typke D, 411 Tzimas G. 152

U

Uchida S, 414

Uchimiya H, 238 UDVARDI MK, 493-523; 499-501, 503-7, 509-14, 516 Ueda J, 356, 368, 369, 557, 688 Ueda T, 311 Uefusi H. 266 Ugalde TD, 202 Uhde C. 499, 500 Uknes S. 91, 95, 252, 267, 438, 443, 449, 452, 530, 531, 538-41 Uknes SJ, 91, 93, 263, 531, 534, 538, 540, 541 Ulmasov B, 394 Ulmasov T, 95, 262 Umbach AL, 709, 711, 715. Umeda M. 238 Umemoto T. 79, 80 Urao S, 408, 413, 416 Urban C. 394 Ureña J. 240 Urizel SB, 41 Url WG, 406, 421 Ursin VM, 483, 559 Urzainqui A, 498 Ussing HH, 405, 415 Uwer U, 685, 691

V

Vacik J, 152 Vahidi H, 287 Valent P, 471 Valenta R, 471 Valentine JS, 720 Valero D, 439 Valle RR, 612, 615 Vallon O, 649, 663 van Aarssen R, 481, 483 Van Aelst AC, 474 Van Aelst L. 288 van Aken J. 169, 470, 472, 473, 477 Van Amstel T, 468-72 van As H. 402, 406, 421 van Bel AJE, 45, 192, 193, 200, 202, 207, 209-11 van Bilsen DG, 463, 464 Van Bockstaele E, 311 van Bruggen EFJ, 74 van Brussel AAN, 497, 500 Van Caeneghem W, 279 van Camp W, 267 Vancannevt G. 300, 464, 483. 484 Vance CP, 496, 497, 502, 506. 511 van de Heuvel K. 483 van de Loo FJ, 113 Van den Ackerveken G, 579 Van den Ackerveken GFJM. 585 van den Bergen CWM, 715. van den Bos RC, 507 Van Den Bulcke M. 263 Van den Koornhuyse N, 71, 83 van der Donk JAWM, 557 van der Graaff E, 312 Van de Rhee MD, 91, 93, 95 Vander Heiden MG, 128 Van der Hoeven C. 311 Vanderleyden J, 52, 53, 58 van der Plas LHW, 452, 715, 718, 727 van der Schoot C, 29, 30, 42, 166, 167, 198, 200, 203, 207 Van der Straeten D. 279, 563. 707 van der Veen JH, 142, 143. 146, 443, 447 van der Veen S. 311 van der Zaal EJ, 95 van de Staaij JWM, 612 van Eden J. 435, 436 Van Emmerik WAM, 704, 715. 718 VanEtten HD, 526 van Grondell R. 646 van Herk AWH, 707 van Hoek AN, 408, 409, 411. 415 Vanhouwelingen A, 683, 684 van Huizen R, 453 Van Kammen A, 363, 507

Van Kan JAL, 91, 95, 585

Van Leeuwen PH, 626

Vanlerberghe AE, 704, 713, 714, 716, 717, 718, 722, 725, 726 VANLERBERGHE GC, 703-34: 704, 706, 709, 711, 713, 714, 716-18, 720, 721, 722, 725, 726 Van Loon LC, 91, 92 van Mieghem FJE, 646 Van Montagu M, 262, 263, 265-67, 279, 298, 311, 540, 563, 707 Van Onckelen H, 58 Van Oosten JJ, 615, 620, 624 van Os CH, 404, 408, 410 van Roekel T. 463, 464, 557. 558 van Slooten J. 503 van Slooten JC, 498, 499 VanToai T, 235 van Tol H. 394 van Tunen AJ, 467, 481 van Verseveld HW, 706 van Vloten-Doting L, 93 Van Went JL, 474, 553 Van Wiemeersch L, 563 van Wordragen MF, 308, 309 Vaguero C. 36, 166 Varner JE, 299, 300 Varshavsky A. 291 Vartapetian BB, 227 Vasil IK. 306 Vass I, 646 Vaux DL, 263 Vavrina CS, 94 Veeger C. 504 Veit B, 38, 156, 167, 681, 685, 688, 689, 691, 694, 696 Veith R, 232 Vella J. 497, 500 Velten J, 303, 311 Venables WN, 715 Vennigerholz F, 474 Venverloo CJ, 172, 173 Vera-Estrella R, 254, 258 Verbavatz J-M, 408 Verbeke JA, 42 Verdijk MAJ, 423 Verkman AS, 404, 408, 409, 411, 412, 415 Verma DPS, 409, 410, 496, 502, 509, 510, 513 Vermaas WFJ, 664 Vermeer E, 452 Vernieri P. 230 Vernooij B, 267, 530, 531, 538, 539 Véry AA, 409

Vesk M. 29

Vetterling W, 334

Vick BA, 363-65

Vickers PJ, 363 Vidali L. 471 Vieth K. 557 Vignais PV, 255, 257, 260 Viitanen PV, 213 Vilhar B. 367, 369 Villand P. 69-71 Villar R, 624 Vincent JM, 512 Viola R. 200, 201 Virbasius JV, 727 Virgona J, 612, 615 Visser RGF, 75-78, 81, 82 Vitaterna MH, 329 Vitousek PM, 612 Voelker TA, 115, 124, 126 Vogel CS, 615 Vogel F, 40 Vögeli-Lange R, 259 Vogt T, 467, 477, 557 Voisey CR, 258, 533, 537 Volbrecht E, 167 Völker M, 647 Vollbrecht E. 38, 156, 681 Volrath S, 92, 104 von Arnim A. 158 Von Bodman SB, 310 von Caemmerer S, 615, 616 von Meyenburg K. 124 von Numers C, 438, 444, 449 Vonschaewen A, 620 Voros K. 363, 367 Vreem JTM, 82 Vreugenhil D Vrtala S. 471 Vu CV, 615 Vu JCV, 615

W

Wada S. 60 Wadsworth P, 178 Waffenschmidt S, 260 Wager-Smith K, 329, 349 Wagner AM, 262, 704, 715, 718, 720, 721, 724 Wagner D, 158 Waigmann E, 35, 36, 41-43, 45 Wais R. 170 Waites R. 695 Wakil S. 115 Walbot V, 100, 130, 143, 153, 154, 227, 228, 234, 237, 266, 311, 528, 576 Walden DB, 694 Walden R, 101, 299, 302 Walker DJ, 169 Walker GC, 498 Walker JC, 238, 583, 587, 593 Walker NA, 202, 203, 205, 207, 209, 211, 215

Walker-Simmons MK, 360. 365, 367 Walkey DGA, 93 Wall GW, 612, 622, 627, 628 Wallace A. 439 Wallace KM, 307 Walles B. 474 Walling LL, 478 Wallsgrove RM, 356 Walsh KB, 192, 200 Walter P. 727 Walters RG, 646 Walters-Vertucci C. 464 Walton JD, 576, 577 Walz T, 411, 656 Wan Y. 307 Wang C-S, 478 Wang DN, 646, 654, 661, 664 Wang G-L, 258, 586, 587, 598 Wang HL, 202, 207, 213, 243, 264, 474, 476, 480, 528, 534, 562, 564 Wang N, 202, 204, 205, 208, 209, 211 Wang S-T. 333 Wang SX, 182, 183 Wang X-D, 202, 362, 436 Wang XM, 537 Wang Y-L, 178, 179, 471 Wang Y-P, 499 Wang Y-X, 41, 104 Wang YP, 622 Warburg O, 708 Warburton MP, 501 Ward BM, 33, 34, 528 Ward DA, 438, 441, 443, 445, 449, 452, 453 Ward E, 252, 258, 261, 267 Ward ER, 91-93, 263, 531, 534, 538, 540, 541 Ward JL, 170, 184, 444 Ward JT, 138 Ward WW, 180-83 Wardlaw CW, 694 Wardlaw IF, 194, 213 Warmbrodt RD, 198, 205, 208 Warn RM, 178, 281 Warncke K, 646, 662 Warner SAJ, 268, 539 Warnick D. 41 Warren GW, 314 Wasserman BP, 68 Wasserman SA, 583, 591, 592 Wassink HJ, 508 Wastaneys GO, 172 Wasternack C, 359, 362, 363, 365, 367 Watanabe Y, 578 Waters I, 225, 227, 233, 236, 237 Watkin E, 225, 227 Watkins NJ, 180

Watkins PAC, 471, 473 Watson NR, 232 Watson RJ, 498-500, 505 Wayne R, 406, 407, 409, 412. 415, 418 Weare NM, 331 Weaver CD, 409, 502, 510, 511, 515 Webb AAR, 170, 184 Webb EC, 391 Webb T, 227 Webb WW, 176, 177 Webber AN, 615, 617, 618, 620-22, 662 Webber GD, 314, 316 Weber H, 68, 69, 71, 210, 211 Weber T, 152 Webster BD, 463 Webster C, 228, 231, 232, 237 Weeks TJ, 307 Weger HG, 708, 726 Weges R, 557, 558 Wei N. 158 Wei W, 314 Weidhase RA, 366, 369, 557 Weil JH, 439 Weiland-Heidecker U, 154, 158, 159 Weiler EW, 53, 59, 358-60. 363, 365, 367, 368, 372, 373 Weiner J, 124 Weinmann P, 91, 101, 102 Weinstein M, 239, 291 Weinstein SL, 593 Weir J. 452 Weiruszeski J-M. 75, 77 Weis K, 40 Weise MJ, 471 Weiss MR, 551, 552 Welander M, 310 Weller JL, 450 Wemmer D, 227, 228, 234 Wendehenne D, 259 Wendenburg R, 98, 104 Wendler S, 404, 421 Wendoloski JJ, 647 Wenker D, 281 Werner BG, 464 Werner D, 496, 499, 506, 510 Werr W, 311 Wesley CS, 329 Wessler SR, 154, 157, 158 West CA, 435, 437-39 Westler WW, 181 Weterings K, 481, 483 Wetzstein HY, 469 Weyers JDB, 613 Weymann K, 91, 267, 530, 531, 538, 540, 541 Whalen MC, 597

Wheatcroft R. 499

Wheeler DA, 329 Whelan J, 502, 510, 511, 704. 706, 709, 711, 712, 715, 718, 721, 722 Whelan WJ, 80 Whigham DF, 627 Whiley AW, 207 White AJ, 127 White FF, 579, 587 White JWC, 610 White NS, 173, 176 White RF, 91, 93, 268, 539 White RG, 29 Whitehead CS, 549, 550, 557, 558, 560, 561 Whitehead LF, 505, 507, 508, Whitelam GC, 311, 450 Whiteside ST, 41 Whitham S, 582, 586, 596, 598 Whittie R, 646 Whittingham TS, 228 Whorf TP, 610 Wicklow DT, 258 Widell S. 502 Widersten M. 265 Wiedenroth EM, 224, 227, 236, 241 Wiederhold DL, 91, 93, 538 Wiegand RC, 94 Wien JD, 624 Wienand U. 138 Wiener MC, 411 Wieringa B, 423 Wiermann R, 465, 467, 557 Wigler M. 288 Wignall JM, 582, 591, 592 Wijn G, 483 Wilde RJ, 100 Wildon DC, 360, 365 Wilen RW, 367, 372 Wilkins D. 620 Wilkinson JQ, 286, 288 Wilkinson MD, 683, 688 Wille JJ, 332, 346 Willekens H, 267 Willemse MTM, 477, 553 Willemsen V, 282 Willenbrink J, 199, 201, 211 Williams AS, 237 Williams GT, 529 Williams JHH, 205, 209, 215 Williams KM, 316 Williams ME, 366 Williams ML, 624 Williams NT, 286 Williams PH, 450 Williams R, 310 Williams RE, 690 Williams S, 91, 92, 95, 258, 261, 538

Williams SC, 91, 93, 538 Williams WE, 612 Williams WP, 650 Williamson RE, 172, 180 Willing RP, 479 Willis CL, 435, 445, 446, 448, 450, 452 Willmitzer L, 29, 68, 91, 96, 152, 300, 356, 359, 360, 363, 365, 367, 373, 375, 620 Wilmink A, 310 Wilsey BJ, 615 Wilson AK, 280, 282 Wilson BJ, 8, 10, 18 Wilson FH, 653, 656, 658 Wilson PM, 230, 232 Wilson PW, 497 Wilson RF, 123 Wilson SB, 715 Wilson TH 409 Wilson TMA, 540 Winans KA, 593 Wincencjusz H. 715 Windhager EE, 414 Wing RA, 559 Wingate VPM, 94, 265 Wingender R, 302 Winkler AA, 311 Winkler RG, 440 Winter A, 538 Winter E. 291 Wirtz E. 102 Wiseman A, 708 Wiskich JT, 704, 706, 709, 714-18, 721, 722, 725-27 Wissenbach M, 152 Witt HT, 652, 653, 659, 663 Wittenbach VA, 359, 367, 369, 615 Wittenberg BA, 513, 514 Wittenberg JB, 513, 514 Wobus U, 68, 69, 71, 210, 211 Wodner M. 56 Woessner JP, 260 Woledge J, 612, 615, 624 Wolf ED, 316 Wolf S, 29, 30, 32, 33, 35, 42, 43, 45 Wolfman A, 286 Wolk CP, 334, 337, 339 Wollenweber E. 467, 477 Wollman FA, 646 Wollmitzer L, 685, 691 Wolswinkel P. 192, 194, 203, 205, 209, 211, 214 Wolter M. 263 Woltering EJ, 550, 551, 557, 560-63 Wong DML, 236 Wong LM, 527 Wong ML, 32-35

Yoshida S, 241

Yoshii M. 77

Wong P-K, 503 Wong SC, 612, 615, 624, 627 Wood CW, 615 Wood JL, 173 Wood JM, 498-500 Wood RM, 194, 199, 207 Woodrow IE, 615, 619, 620, 628 Woodson WR, 548, 551, 557, 560, 562, 564 Woodward Fl, 610, 613, 615 Wraight CA, 647 Wright AD, 54, 56 Wright KM, 198-201, 210 Wu GS, 260 Wu H-M, 474, 476, 480 Wu K, 438, 443, 444, 449, 450 Wu LP, 178, 311 Wu R. 299, 300, 305 Wu TY, 584, 591 Wu WL, 477 Wu Y. 37, 45, 100 Wuilleme S, 209 Wulczyn G, 40 Wulff RD, 615 Wullems GJ, 93 Wullschleger SD, 612, 613, 615, 617, 623, 624, 626 Wulster G. 560 Wurgler-Murphy S, 291 Wurtele ES, 113 Wyatt JT, 330 Wydrzynski T, 646 Wymer C, 166, 172, 178 Wyse R, 209-11 Wyse RE, 210, 211

X

Wyza RE, 504

Xanthoudakis S, 262 Xia D, 652 Xia JH, 198, 233, 234 Xia JH, 198, 233, 234 Xia J-Z, 652 Xia ZQ, 359, 367 Xiao C-M, 479 Xie DX, 366, 367, 372 Xie WQ, 287 Xu A, 30, 80 Xu DQ, 612, 615 Xu H-L, 481, 483 Xu P, 467 Xu Q, 662 Xu Y, 367, 372, 373, 393 Xu YL, 443, 449

)

Yahia E, 226 Yakir D, 726-28 Yakura K, 394 Yamada A, 360, 367 Yamada K. 113 Yamada M. 115, 120, 123 Yamada S, 408, 409, 413, 416, Yamagata H. 184 Yamaguchi I, 444, 450 Yamaguchi J, 156, 483, 559, 681, 685, 695, 696 Yamaguchi K, 625 Yamaguchi S, 437, 452 Yamaguchi Y, 387, 391, 452 Yamaguchi-Shinozaki K. 282. 408, 413, 416 Yamamoto K, 40, 154 Yamamoto KR, 100, 101 Yamamoto N, 682 Yamamoto YT, 413, 416, 662, Yamane H, 360, 367, 369, 435, 437, 440, 445, 446, 448, 450, 452, 557 Yamasaki H, 266 Yamashita E. 625 Yamashita J. 394 Yamawaki-Kataoka Y, 589 Yamazaki K, 387-91, 563 Yamguchi K, 53, 59 Yang A-F, 499 Yang H-Y. 554 Yang MM, 182 Yang SF, 278, 285, 445, 528, 550, 557, 559, 560 Yang WN, 172 Yang YY, 450, 451, 477, 579 Yang Z-B, 471 Yano M, 79, 80 Yanofsky MF, 688, 689 Yarosh OK, 498, 499 Yasonaga T, 591 Yasugi S, 552 Ye Z-H, 299, 300 Yeager M, 411 Yeates TO, 652 Yelle S, 201, 615 Yen G. 463, 465, 466 Yen H-C, 286, 288 Yen L-F, 469 Yeung EC, 552 Yi Y, 512, 513 Yin X-M, 265 Yip KC, 550 Ylstra B, 467, 468, 482 Yocum CF, 647, 656, 659, 661 Yoder JI, 310 Yokota E, 470, 471 Yokota T. 452 Yokoyama R, 597 Yoneyama T, 497 Yool AJ, 414

Yalpani N, 540, 718

Yoshimoto A, 704, 706-8, 711, 718, 720 Yoshimura Y. 183 Yoshiwoka S. 578 Young MW, 329, 349 Young N, 140-42, 145, 156 Young S, 500, 501, 505, 718, 721 Young SA, 537 Youssefian S, 259 Youvan DC, 182 Yu C-A, 652 Yu F. 113 Yu G-L, 580, 586, 589, 597 Yu JW, 709, 711 Yu L, 652 Yu SG, 650, 652, 665 Yu XB 389 Yuan M, 178, 281 Yukioka H. 720

7.

Zabawinski C. 71, 83 Zacarias L. 453 Zadoks JC, 320 Zaitlin M, 34 Zak DR, 615 Zambryski P, 29, 32-36, 42, 43, 45, 298, 299, 309 Zambryski PC, 41, 93, 182, 183 Zamski E, 210, 211 Zanewich KP, 451 Zannoni D, 706 Zarembinski TI, 278 Zbrozek J, 479 Zeevaart JAD, 435, 436, 438, 441, 443, 444, 446, 449, 450 Zeh W, 362 Zehring WA, 329 Zeidel ML, 407-9, 415-17, 423 Zeidler M. 102 Zelechowska M. 513 Zelitch I. 616 Zeman I, 239 Zeng H. 349 Zeng W, 182, 183 Zenk MH, 267, 358, 360, 372 Zerback R, 467 Zeuthen T, 409 Zhan XY, 476 Zhang B, 262 Zhang DH, 178 Zhang H-Q, 463, 464, 477 Zhang J, 240, 242 Zhang M, 146, 513 Zhang Q, 230, 727 Zhang R, 411, 412, 589

Zhang W, 202, 205, 207, 209, 211, 215, 300, 498 Zhang WH, 402, 403, 416, 419 Zhang X-F, 287 Zhang XS, 549, 551-53, 556-61, 564, 566 Zhang YX, 502, 515, 55 Zhang ZG, 258, 262 Zhang ZP, 360, 363 Zhao J, 57 Zheleva D, 646, 650, 653, 654, 656, 658, 659, 661, 664

Zheng G-C, 41

Zheng J, 580 Zheng WL, 477 Zhiznevskaya GY, 509 Zhou D, 286, 288 Zhou J, 258, 530, 537, 579, 584, 589, 591, 593, 595 Zhou L, 226 Zhu J-K, 471 Zhu Q, 384, 385, 392, 393 Zhu Y, 498 Zillikens J, 406, 418

Zimmerlin A, 255, 257

Zimmermann JL, 646

Zimmermann S, 240 Zimmermann U, 403, 404, 406, 415, 418, 421 Ziska LH, 612, 615, 623, 624, 626 Zitomer RS, 239 Zoul J-T, 124 Zuberi MI, 464 Zupan J, 33, 34, 182, 183 Zupan JR, 41, 42, 299, 309 Zwiers JH, 704, 718

SUBJECT INDEX

act1 gene African green monkey kidney fatty acid synthesis regulacells A23187 calcium ionophore tion and, 112 programmed cell death and, oxidative burst in disease re-528 sistance and, 264 pollen germination and, 461, **AGPase** starch granule synthesis and, AAL-toxin 469-71 and transport of proteins and oxidative burst in disease re-68-72, 83 sistance and, 264 nucleic acids through plas-AGP genes programmed cell death and, modesmata, 29, 34 starch granule synthesis and, 528-29 Actinomycin D 69.71 Abaxial surfaces oxidative burst in disease re-Agriculture sistance and, 260 trichome development in and CO2 and more efficient Arabidopsis and, 141 Activation plants, 609-10, 614, 628 phloem unloading and, 194 Abcission chemical control of gene inethylene response pathway in duction and, 101-4 Agrobacterium rhizogenes Arabidopsis and, 278 Acyl chains chemical control of gene inpollination regulation and, fatty acid synthesis reguladuction and, 99 547 tion and, 110-11 Agrobacterium sp. Abiotic stress Adaptation angiosperm shoot apical jasmonates and, 369-71 cyanobacterial circadian meristem development and, rhythms and, 347-48 Abscisic acid ethylene response pathway in Adenosine triphosphate (ATP) chemical control of gene in-Arabidopsis and, 280 alternative oxidase and, 703, duction and, 98 fluorescent microscopy of liv-724-25 plant transformation and, ing plant cells and, 169-70, 299, 302, 304-6, 308-9, auxin biosynthesis and, 60 184 and oxygen deficiency and 311-13, 317-18 ACC oxidase root metabolism, 223, 225, and transport of proteins and gibberellin biosynthesis and, nucleic acids through plas-227-29, 233, 235, 239-41 445 pollen germination and, 470 modesmata, 41 pollination regulation and, symbiotic membranes from Agrobacterium tumefaciens 564-65 legume nodules and, auxin biosynthesis and, 57 ACC synthase 509-11 Agrostemma githago pollination regulation and, and transport of proteins and gibberellin biosynthesis and, 562-63 nucleic acids through plas-450 ACE1 activator modesmata, 29, 31, 40 Alanine chemical control of gene in-Adhl gene alternative oxidase and, 711, duction and, 101 and oxygen deficiency and root metabolism, 228, 237-38, Acetosyringone aquaporins and, 408 plant transformation and, 240 auxin biosynthesis and, 309 ADP-glucose Acetyl-CoA starch granule synthesis and, and transport of proteins and auxin biosynthesis and, 60 67-71, 82-83 nucleic acids through plas-Acetyl-CoA carboxylase ADP-glucose pyrrophosphorymodesmata, 41 fatty acid synthesis regulalase Aldehydes tion and, 109, 112-21, 124, phloem unloading and, 207 cyanobacterial circadian 128, 130-31 AE gene rhythms and, 335-36 Acidosis starch granule synthesis and, 78 Ald gene cytoplasmic Aequoria victoria and oxygen deficiency and and oxygen deficiency and root metabolism, 223 root metabolism, 238 fluorescent microscopy of living plant cells and, 180-82 Aleurone Acl1.2 gene Aequorin fluorescent microscopy of fatty acid synthesis regulafluorescent microscopy of livliving plant cells and, 169, 175-76, 185 tion and, 128 ing plant cells and, 165, Acorus calamus 179-81, 185 alf3 mutant Aerenchyma and oxygen deficiency and auxin biosynthesis and, 60 root metabolism, 226, 230, and oxygen deficiency and chemical control of gene in-238 root metabolism, 223, Acrylodan 241-43 duction and, 94 Aerobic fermentation fluorescent microscopy of livoxidative burst in disease reing plant cells and, 179 alternative oxidase and, 725 sistance and, 266

Alfalfa mosaic virus (AMV) and transport of proteins and nucleic acids through plasmodesmata, 33, 36 Algae

alternative oxidase and, 704, 708, 720 C2 cycle and, 12, 15–17, 20, 24 photosystem II and, 641

Algorithms

fluorescent microscopy of living plant cells and, 172 Allene oxide synthase jasmonates and, 355, 359,

364–65

Allium cepa aquaporins and, 406

Allium sp. aquaporins and, 416 Allosteric regulation starch granule synthesis and,

Almond pollination regulation and, 554

Alocasia sp. photosystem II and, 648

Alternaria alternata oxidative burst in disease resistance and, 264 programmed cell death and, 528

Alternative oxidase background, 706-7 biochemistry, 714-18 electron partitioning coarse control, 718-21 fine control, 721-23 enzyme regulation, 714-18 function in higher plants, 723-26 future research, 726-28

gene expression, 708–13 genetics, 707–8 history, 706–7 introduction, 704–6 transgenes, 713–14

α-Amanitin

in vitro transcription systems and, 389, 395

Amino acids

angiosperm shoot apical meristem development and, 682 aquaporins and, 408, 410–11

auxin biosynthesis and, 51, 61–62 cyanobacterial circadian

rhythms and, 333 ethylene response pathway in Arabidopsis and, 284–85,

288 fluorescent microscopy of living plant cells and, 171,

181, 184 jasmonates and, 368-69 starch granule synthesis and, 68, 75 symbiotic membranes from legume nodules and,

498-500, 515 α-Aminoisobutyric acid ethylene response pathway in

Arabidopsis and, 281
Aminotransferases
auxin biosynthesis and, 57–58

3-Aminotriazole oxidative burst in disease resistance and 263, 267

sistance and, 263, 267 Ammonia symbiotic membranes from

legume nodules and, 504, 507–8

Amplitude rhythm

cyanobacterial circadian rhythms and, 327

amp mutants angiosperm shoot apical meristem development and, 693–94

amt-1 mutant auxin biosynthesis and, 57

See Alfalfa mosaic virus Amylopectin starch granule synthesis and,

67-68, 72-75 Amyloplast starch granule synthesis and,

70, 76, 82 Amylose

starch granule synthesis and, 67–68, 80–83 Anabaena cylindrica

cyanobacterial circadian rhythms and, 331 Anabaena sp.

cyanobacterial circadian rhythms and, 335 Anaerobic genes

and oxygen deficiency and root metabolism, 234 Aneuploidy

plant transformation and, 299 Angiosperms alternative oxidase and, 704,

708 Angraecum sp.

pollination regulation and,

Animal grazers and CO₂ and more efficient plants, 609, 629

Ankyrin and transport

and transport of proteins and nucleic acids through plasmodesmata, 40

Anoxia and ox

and oxygen deficiency and root metabolism, 223-43 phloem unloading and, 199 ant1 mutants

angiosperm shoot apical meristem development and, 696

Antenna system photosystem II and, 641, 647-52

Anthesis

alternative oxidase and, 704 Anthocyanin

fatty acid synthesis regulation and, 130 regulatory reporter systems

plant transformation and, 300 Anthralinate

symbiotic membranes from legume nodules and, 498 Anthranilate synthase

feedback-insensitive auxin biosynthesis and, 56–57 Antibiotics

plant transformation and, 310 programmed cell death and, 530

Antibodies

alternative oxidase and, 707–9, 717

chemical control of gene induction and, 103 fatty acid synthesis regula-

tion and, 117 fluorescent microscopy of living plant cells and, 172 jasmonates and, 358

oxidative burst in disease resistance and, 259

pollen germination and, 470–71, 474 symbiotic membranes from

legume nodules and, 513 Antimycin A alternative oxidase and,

704–6, 708, 713–14, 718, 720, 725–26 Antirrhinum sp.

pollination regulation and, 559 and transport of proteins and nucleic acids through plasmodesmata, 39

Antisense RNA starch granule synthesis and, 76, 82

and genes alternative oxidase and, 708

AoPRI-GUS fusion programmed cell death and, 539

Aoxl gene alternative

alternative oxidase and, 703-4, 707-8, 711-13, 716-21, 726

Ap-1 cis element oxidative burst in disease resistance and, 262 ap1 mutant angiosperm shoot apical meristem development and, 687

Apical hook ethylene response pathway in Arabidopsis and, 278, 281, 289

Apical meristem and oxygen deficiency and root metabolism, 223–43

Apical sinks jasmonates and, 373

Apices gibberellin biosynthesis and, 443

vegetative phloem unloading and, 198–99

Apoaequorin fluorescent microscopy of living plant cells and, 180

Apoplasm oxidative burst in disease resistance and, 258 phloem unloading and, 191, 194–204, 207–13

194–204, 207–13 programmed cell death and, 529, 531, 536 Apoptosis

See Programmed cell death Apoptotic bodies programmed cell death and, 534

Apple aquaporins and, 406 gibberellin biosynthesis and, 445

Appressed endoplasmic reticulum

and transport of proteins and nucleic acids through plasmodesmata, 28

Aquaporins background, 401–2 early evidence for plant water channels, 405–7 functional studies of plant

water channels contribution of aquaporins to membrane water transport, 412, 414

heterologous expression of aquaporins in *Xenopus* oocytes, 411–13

mechanisms of water permeation, 415 transport selectivity, 414-15

integrated function, 418–19 cell volume, 421–22 long-distance water transport, 419–20

osmoregulation, 421–22 transcellular water transport, 419–20 introduction, 400-1 membrane water permeability measurements

diffusional water permeability, 402 osmotic water permeability,

403-4 wide range of measured per-

meabilities, 404 molecular features of water

channels MIP homologs, 408–9 molecular structure, 410–11

molecular structure, 410–11 plasma membrane, 409 vacuoles, 409

water-transport proteins, 408-9

molecular identification, 407–8 perspectives, 422–23 regulation of activity, 415–16 cell localization, 417

gene expression, 416–17 posttranslational modifications, 417–18 regulatory mechanisms, 418

water channel emergence in plant physiology, red blood cell paradigm, 404–5

Aqueous-phase system alternative oxidase and, 727–28

Arabidopsis brassicola jasmonates and, 373

Arabidopsis sp. angiosperm shoot apical meristem development and,

675–96 aquaporins and, 407–8, 416, 420–21

chemical control of gene induction and, 91, 99–100,

102, 104 cyanobacterial circadian rhythms and, 334, 337, 341, 349

ethylene response pathway and, 277–92

disease resistance genes and, 580, 582, 597–99

fatty acid synthesis regulation and, 112, 124-29 fluorescent microscopy of liv-

ing plant cells and, 180, 182 gibberellin biosynthesis and, 437, 439, 443–44, 446–49, 452–53

in vitro transcription systems and, 389, 395 oxidative burst in disease re-

sistance and, 262, 264, 266-67 plant transformation and, 302, 313

pollen germination and, 465,

programmed cell death and, 527-28, 530-31, 533, 538, 540-41

and transport of proteins and nucleic acids through plasmodesmata, 46

trichome development and, 137-60

Arabidopsis thaliana alternative oxidase and, 709, 711–12

aquaporins and, 413 auxin biosynthesis and, 54-57, 59-61

disease resistance genes and, 578 fatty acid synthesis regula-

fatty acid synthesis regulation and, 122 fluorescent microscopy of liv-

ing plant cells and, 168, 176–77, 183 gibberellin biosynthesis and,

435 jasmonates and, 359, 361,

364, 366, 371–73 and oxygen deficiency and root metabolism, 242 pollen germination and, 463,

pollination regulation and, 567 Arabinogalactan proteins

pollen germination and, 461, 475–77 Arachidonic acid

programmed cell death and, 534

Arachnis sp. pollination regulation and, 550

Aranda sp. pollination regulation and, 550 Arctic tussock tundra and CO₂ and more efficient

plants, 628 Arginine

symbiotic membranes from legume nodules and, 498

Arum maculatum alternative oxidase and, 707 as-1 gene

in vitro transcription systems and, 390

ASA1 gene auxin biosynthesis and, 56 Asc gene

programmed cell death and, 528

Ascorbate peroxidase oxidative burst in disease resistance and, 258 Asparagine

aquaporins and, 408 symbiotic membranes from legume nodules and, 498, 505 Aspartate auxin biosynthesis and, 61–62 symbiotic membranes from legume nodules and, 500, 505–6

Aspergillus niger oxidative burst in disease resistance and, 260

AtAux2-11 gene ethylene response pathway in Arabidopsis and, 289

Athb-1 transcriptional activator chemical control of gene induction and, 100

AtLox genes jasmonates and, 364

Atmosphere CO₂ and O₂ levels C₂ cycle and, 1, 20–21 rising CO₂ levels in plant efficiency and, 609–29

ATP See Adenosine triphosphate

ATPase and transport of proteins and nucleic acids through plasmodesmata, 41

AtVsp gene jasmonates and, 371–72 Australian grass

and CO₂ and more efficient plants, 614, 627

Automated screening cyanobacterial circadian rhythms and, 336–38

Auxins
ethylene response pathway in
Arabidopsis and, 280, 289
jasmonates and, 369
plant transformation and,

plant transformation and, 313 pollination regulation and, 547, 551, 555–57, 559, 563,

566–67 Auxotrophs tryptophan

auxin biosynthesis and, 54–56

avr genes disease resistance and, 269

disease resistance and, 269 disease resistance genes and, 575, 577–80, 582, 584, 587–89, 595–97, 600–2 oxidative burst in disease re-

sistance and, 251–52, 254–55, 258–59, 263, 268 programmed cell death and, 529, 533–34, 539

Axial pathway phloem unloading and, 193, 203, 213

Axis

angiosperm shoot apical

meristem development and, 685-89

axr mutants

angiosperm shoot apical meristem development and, 687 ethylene response pathway in Arabidopsis and, 280

Azorhizobium sp. symbiotic membranes from legume nodules and, 495

Azospirillum brasilense auxin biosynthesis and, 58 Azotobacter sp.

symbiotic membranes from legume nodules and, 503

B

Bacillus thurengiensis

δ-endotoxin

chemical control of gene induction and, 92-93

Bacteroids

symbiotic membranes from legume nodules and, 493, 497–504, 509, 511–12

ba mutants

angiosperm shoot apical meristem development and, 688 Barberry bush

disease resistance genes and,

602 Barlay

angiosperm shoot apical meristem development and, 690 disease resistance genes and, 601–2

fatty acid synthesis regulation and, 118

fluorescent microscopy of living plant cells and, 169, 175, 185

gibberellin biosynthesis and, 435, 440–41, 445 jasmonates and, 363 oxidative burst in disease re-

sistance and, 261, 263 programmed cell death and, 532, 538

starch granule synthesis and, 69-71

Basal respiration oxidative burst in disease resistance and, 257

BCCP protein fatty acid synthesis regulation and, 113, 130

BCECF pH indicator fluorescent microscopy of living plant cells and, 169 Bcp10plain ndl1 gene

pollen germination and, 481, 483

BDMV

See Bean dwarf mosaic geminivirus Bean

aquaporins and, 407, 413 auxin biosynthesis and, 61 chemical control of gene induction and, 94

in vitro transcription systems and, 391

oxidative burst in disease resistance and, 257-58 phloem unloading and, 199 plant transformation and, 307

starch granule synthesis and, 68-69, 71

Bean dwarf mosaic geminivirus (BDMV) and transport of proteins and nucleic acids through plasmodesmata, 34

Benzoic acid oxidative burst in disease resistance and, 259

Benzothadozole programmed cell death and, 538

hif mutants angiosperm shoot apical meristem development

and, 688-89 Bilayers lipid

aquaporins and, 399, 414
Bioluminescence reporting
cyanobacterial circadian
rhythms and, 336–38

Biosphere-atmosphere model coupled and CO₂ and more efficient plants, 629

Biotin carboxylase fatty acid synthesis regulation and, 113

Biotrophy disease resistance genes and, 577, 583

phloem unloading and, 203 programmed cell death and, 532-33

Bipartate motif and transport of proteins and nucleic acids through plasmodesmata, 39–40

Birdsfoot trefoil alternative oxidase and, 707 BL1 movement protein

and transport of proteins and nucleic acids through plasmodesmata, 34, 36 Blebbing

oxidative burst in disease resistance and, 263 programmed cell death and, Blue fluorescent proteins fluorescent microscopy of living plant cells and, 182–83 Blue light

cyanobacterial circadian rhythms and, 345 fluorescent microscopy of living plant cells and, 180

Bolting accelerated gibberellin biosynthesis and, 453

bom gene cyanobacterial circadian rhythms and, 337

Booby traps C2 cycle and, 16–17 bO protein

programmed cell death and, 536-37

Botrytis sp. disease resistance genes and, 576

BR1 movement protein and transport of proteins and nucleic acids through plasmodesmata, 34

Bracts trichome development in Arabidopsis and, 141

Bradyrhizobium japonicum symbiotic membranes from legume nodules and, 497, 500-1, 506-7, 513

Bradyrhizobium sp. symbiotic membranes from legume nodules and, 495 Branching

alternative oxidase and, 703 angiosperm shoot apical meristem development and, 673, 685–89 trichome development in

Arabidopsis and, 138, 141, 146, 148–49 Brassica campestris pollen germination and, 481,

483
Brassica napus
fatty acid synthesis regulation and, 122, 124, 126–29
gibberellin biosynthesis and,
451

pollen germination and, 471 Brassica oleraceae pollen germination and, 468, 479

Brassica rapa gibberellin biosynthesis and, 450

Brassica sp. aquaporins and, 422 disease resistance genes and, 583 fatty acid synthesis regulation and, 121, 125 pollen germination and, 465–66 Breeding plant transformation and,

320

Bridges programmed cell death and, 530

BRITTLE2 gene starch granule synthesis and, 69, 70

Brodiaea sp. pollination regulation and, 556 Bronze-2 gene

oxidative burst in disease resistance and, 266 Bryonia dioica

jasmonates and, 363 BT1 gene starch granule synthesis and,

70 BTH

chemical control of gene induction and, 92–93, 104 Buffers

fatty acid synthesis regulation and, 120 fluorescent microscopy of living plant cells and, 171 in vitro transcription systems and, 387

Bulk flow phloem unloading and, 191, 194–95, 203–7

Bundle sheath cells C2 cycle and, 13 and transport of proteins and nucleic acids through plasmodesmata, 43–45

Bünning's hypothesis cyanobacterial circadian rhythms and, 328–29 BY-2 cells

chemical control of gene induction and, 102 in vitro transcription systems and, 391, 393

bZIP protein jasmonates and, 366

C2 oxidative photosynthetic

C

carbon cycle booby traps with algae, 16–17 C2 cycle, 7–9 eelectic research, 21–24 glycolate, 9–12 introduction, 2–5 low CO₂, 5–7 O₂ and CO₂ compensation points, 12–15 phosphoglycolate, 9–12 photorespiration, 17–19

photosynthetic quotient, 15-16

quantum efficiency, 15–16 regulation of atmospheric CO₂ and O₂ levels, 20–21 reviews and references, 24–25 Rubisco, 9, 10–12

C31 ketone fatty acid synthesis regulation and, 110

fluorescent microscopy of living plant cells and, 166–71, 175–76, 179–81, 184 oxidative burst in disease resistance and 251, 259, 262

sistance and, 251, 259, 262, 264 phloem unloading and, 208 pollen germination and, 461,

472-73 programmed cell death and, 537

symbiotic membranes from legume nodules and, 511, 516

and transport of proteins and nucleac acids through plasmodesmata, 30 trichome development in Arabidopsis and, 160

cab gene alternative oxidase and, 719-20 chemical control of gene induction and, 100

cyanobacterial circadian rhythms and, 349 Caenorhabditis elegans fluorescent microscopy of liv-

ing plant cells and, 182–83 Caged probes fluorescent microscopy of living plant cells and, 183–84

Calcium-binding proteins jasmonates and, 359 California Bay medium-chain thioesterase

fatty acid synthesis regulation and, 114–15, 124–26 Callus transformation microprojectile, 304–5, 307,

Calmodulin fluorescent microscopy of living plant cells and, 179

313

ing plant cells and, 179
jasmonates and, 359
trichome development in
Arabidopsis and, 160
Calvin cycle

and CO2 and more efficient plants, 621 cAMP See Cyclic adenosine mono-

phosphate CaMV See Cauliflower mosaic virus Candida lipolytica alternative oxidase and, 706 Canola plant transformation and, 315

Canopy and CO₂ and more efficient plants, 614, 621–22 Cantharidin

oxidative burst in disease resistance and, 263

Capsicum plant transformation and, 315

Capsicum annum gibberellin biosynthesis and, 439

Carbamylation and CO₂ and more efficient plants, 625

Carbohydrate and CO₂ and more efficient plants, 617, 620–21 cyanobacterial circadian rhythms and, 332 phloem unloading and, 208

Carbon alternative oxidase and, 703–4, 706, 719–21, 723–24, 726 and CO₂ and more efficient plants, 609, 616, 625–28

jasmonates and, 368–70, 372, 374–75 membranes from legume nod-

ules and, 493 symbiotic membranes from legume nodules and, 497–502, 509–10

Carbon cycle C2 oxidative photosynthetic, 1–25

Carbon dioxide (CO₂) alternative oxidase and, 708 C₂ cycle and, 1, 5–7, 12–15, 20–21 rising atmospheric

plant efficiency and, 609–29 Carbon reduction cycle photosynthetic and CO₂ and more efficient

plants, 609 Carboxyfluorescein fluorescent microscopy of living plant cells and, 169 phloem unloading and, 198

Carboxylation and CO₂ and more efficient plants, 615

Carboxyltransferases fatty acid synthesis regulation and, 112–13

β-Carotene jasmonates and, 371 Carpels

trichome development in Arabidopsis and, 138 Carrot aquaporins and, 416 auxin biosynthesis and, 54

phloem unloading and, 200 Cascades ethylene response pathway in Arabidopsis and, 277, 287,

Arabidopsis and, 277, 287, 292

phloem unloading and, 208 Castor bean

phloem unloading and, 205 and transport of proteins and nucleic acids through plasmodesmata, 37

Catalase oxidative burst in disease resistance and, 259, 261, 263, 267

programmed cell death and, 540

Cattleya sp. pollination regulation and, 550, 552, 560

Cauliflower mosaic virus (CaMV) alternative oxidase and, 713 angiosperm shoot apical meristem development and, 690

chemical control of gene induction and, 91–92, 97–98, 100

in vitro transcription systems and, 384, 389-93 plant transformation and, 311 and transport of proteins and nucleic acids through plasmodesmata, 33

trichome development in Arabidopsis and, 142 Cauline coflorescences angiosperm shoot apical

meristem development and, 685–87

See Charge-coupled device cDNA See Copy DNA

CDPK gene pollen germination and, 481

Cell cycle cyanobacterial circadian rhythms and, 331–32, 346–47

Cell death oxidative burst in disease resistance and, 251, 255, 259, 262–65, 269 programmed, 525–41

Cell determination trichome development in Arabidopsis and, 160

Cell differentiation trichome development in Arabidopsis and, 137, 160

Cell fate trichome development in Arabidopsis and, 137 Cell localization aquaporins and, 417

Cell membrane aquaporins and, 402–4 Cell movement

pollen germination and, 478 Cell proliferation plant transformation and, 306

Cell-to-cell movement and transport of proteins and nucleic acids through plasmodesmata, 27, 46

Cellular pathway phloem unloading and, 191, 195–203

Cellular proteins and transport of proteins and nucleic acids through plasmodesmata, 38–39

Cell volume aquaporins and, 421–22

Cell wall aquaporins and, 401 jasmonates and, 355, 360 oxidative burst in disease resistance and, 251, 256, 260-61

Cereal grains phloem unloading and, 208 plant transformation and, 313 starch granule synthesis and,

78–79
cer mutants
pollen germination and,
465–66

Cf genes disease resistance genes and, 584–87 oxidative burst in disease resistance and, 254, 258

Chaperonins and transport of proteins and nucleic acids through plasmodesmata. 37

Chara australis aquaporins and, 406 Chara corallina

aquaporins and, 406 Chara sp. aquaporins and, 402–4

aquaporins and, 402–4, 407, 409, 412, 415, 418 C₂ cycle and, 16

Charge-coupled device (CCD) camera cyanobacterial circadian rhythms and, 336 fluorescent microscopy of liv-

fluorescent microscopy of liing plant cells and, 180–81 Charophyceae C2 cycle and, 16

Chemical control of gene expression comparison to promoters used in animals, 103–4 copper-dependent gene expression, 101 elicitors, 93-94 heterologous elements of gene regulation, 96-104 introduction, 89-90 IPTG-inducible gene expression, 99-100 plant promoters, 90-95 promoter-activating systems, 100-3 promoter-repressing systems, 97-103 safeners, 94-95 steroid-dependent gene expression, 100-1 systemic acquired resis-

tance, 90–93
tetracycline-dependent gene
expression, 101–3
tetracycline-inducible gene
expression, 97–99
wound responses, 95–96
Chemical mutagenesis
cyanobacterial circadian

rhythms and, 343 CHeY protein ethylene response pathway in Arabidopsis and, 287 chiA gene

pollen germination and, 481 Chilling stress oxidative burst in disease re-

oxidative burst in disease re sistance and, 262 Chimeras angiosperm shoot apical

meristem development and, 680 chemical control of gene induction and, 94, 101, 104 plant transformation and

plant transformation and, 310, 313 Chinese cabbage

auxin biosynthesis and, 61 CHIP28/AQP-1 water channel aquaporins and, 408, 410–11 Chitosans

jasmonates and, 360 Chlamydomonas reinhardtii alternative oxidase and, 708 pollen germination and, 477

Chlamydomonas sp. eyanobacterial circadian rhythms and, 341 fatty acid synthesis regulation and, 123 oxidative burst in disease resistance and, 260 starch granule synthesis and, 71, 75, 77, 79, 83

Chloramphenicol alternative oxidase and, 706, 708

Chlorella sp. C2 cycle and, 15 Chlorophyll jasmonates and, 369 Chloroplasts

alternative oxidase and, 719, 722 and CO₂ and more efficient

plants, 620–21 fatty acid synthesis regulation and, 112, 115–18, 120, 122, 126

fluorescent microscopy of living plant cells and, 182 gibberellin biosynthesis and, 439

jasmonates and, 359, 364, 368 plant transformation and,

311 starch granule synthesis and, 70

and transport of proteins and nucleic acids through plasmodesmata, 37

Chlorosis

jasmonates and, 370 Cholera toxin A1 oxidative burst in disease resistance and, 259

Chromatin in vitro transcription systems and, 389–90

Chromosomes cyanobacterial circadian rhythms and, 337–38

Chrysophthartus flaveola and CO2 and more efficient plants, 628

Chs gene in vitro transcription systems and, 392 jasmonates and, 367, 372,

375 oxidative burst in disease resistance and, 261, 265, 268

CHS15 promoter in vitro transcription systems

and, 391
Cinnamic acid

oxidative burst in disease resistance and, 259 Circadian rhythms cvanobacteria and, 327–50

cis-acting elements aquaporins and, 416 fatty acid synthesis regulation and, 130

in vitro transcription systems and, 388, 391 oxidative burst in disease resistance and, 262

Citrus fruit phloem unloading and, 201

fluorescent microscopy of living plant cells and, 167 Cladosporidium fulvum disease resistance genes and, 578, 584, 588

oxidative burst in disease resistance and, 254 programmed cell death and, 529

clavata gene disease resistance genes and, 597

Climate change and CO₂ and more efficient plants, 609, 628–29 Cl-NERF

fluorescent microscopy of living plant cells and, 169 Clock circadian

cyanobacterial, 327–50, 355 Cloning alternative oxidase and, 707–9 gibberellin biosynthesis and,

431 CLSM

See Confocal laser scattering microscope

Clubroot disease auxin biosynthesis and, 61 clv mutants

angiosperm shoot apical meristem development and, 685, 692–94 CMV

See Cucumber mosaic virus C/N theory jasmonates and, 374–75 CO₂

See Carbon dioxide Coarse control in electron partitioning alternative oxidase and, 718–21

Coat protein and transport of proteins and nucleic acids through plasmodesmata, 45

Cochliobolus carbonum disease resistance genes and, 577

Coelentrazine

fluorescent microscopy of living plant cells and, 179–80

Cofactors fatty acid synthesis regulation and, 121–22 fluorescent microscopy of living plant cells and, 179

coil mutant jasmonates and, 366, 372-73 Cold stress alternative oxidase and, 703

fluorescent microscopy of living plant cells and, 180–81 Coleoptile tips

auxin biosynthesis and, 54

Collateral genetic damage plant transformation and, 297, 318–20

Colletotrichum sp. disease resistance genes and, 577

Commercial expectations plant transformation and, 301, 307, 312, 314–15, 320 Compartmentalization

auxin biosynthesis and, 59 fatty acid synthesis regulation and, 111-12

Compensation points
O2 and CO2
C2 cycle and, 1, 12–15

Competition for resources jasmonates and, 374 Complex 1

alternative oxidase and, 703–5 Complex loci disease resistance genes and,

598 Computer-based image analysis

living plant cells and, 165
Concentrating processes
C2 cycle and, 1

Conductance stomatal

and CO₂ and more efficient plants, 609, 611–14, 629

Confocal laser scattering microscope (CLSM) fluorescent microscopy of liv-

ing plant cells and, 173–77 Conjugate hydrolysis

auxin biosynthesis and, 51, 60-62 Conjugation

cyanobacterial circadian rhythms and, 337

Constitutive response mutants ethylene response pathway in Arabidopsis and, 281–83

Convective heat loss and CO₂ and more efficient plants, 629

Copper-dependent gene expression

chemical control of gene induction and, 101

Corn auxin biosynthesis and, 61 C2 cycle and, 12 phloem unloading and, 200 plant transformation and, 315

Coronatine jasmonates and, 357, 366 Cotton

angiosperm shoot apical meristem development and, 677 and CO₂ and more efficient plants, 614, 628

plant transformation and, 307, 315 Cotyledons

alternative oxidase and, 712 angiosperm shoot apical meristem development and, 677–78, 680, 682 aquaporins and, 407 gibberellin biosynthesis and,

443, 452 jasmonates and, 363 trichome development in

Arabidopsis and, 138 Coupled clocks cyanobacterial circadian rhythms and, 343

Coupled processes alternative oxidase and, 703 Covalent modification alternative oxidase and, 703

alternative oxidase and, 703, 715, 722

Cowpea gibberellin biosynthesis and, 450

oxidative burst in disease resistance and, 264 symbiotic membranes from legume nodules and, 497

CP43 complex photosystem II and, 659–61 Crafts-Broyer hypothesis

Crafts-Broyer hypothesis and oxygen deficiency and root metabolism, 225 Cross-linking

oxidative burst in disease resistance and, 251, 260-61 Cross-over

cyanobacterial circadian rhythms and, 337

auxin biosynthesis and, 59 Cruciferin

jasmonates and, 367 ctrl mutant ethylene response pathway in Arabidopsis and, 280–84, 286–88, 290–92

CTR1 protein kinase ethylene response pathway in Arabidopsis and, 286–88

cuc mutant angiosperm shoot apical meristem development and,

682–83 Cucumber

fluorescent microscopy of living plant cells and, 176 jasmonates and, 363 oxidative burst in disease resistance and, 267

Cucumber mosaic virus (CMV) and transport of proteins and nucleic acids through plasmodesmata, 36

Cucumis sativus L. jasmonates and, 363 Cucurbita maxima gibberellin biosynthesis and, 435, 437

Cultivar improvement plant transformation and, 297, 299, 302–3, 307, 311

Cultured cell extracts in vitro transcription systems and, 390–92

Cuphea sp. fatty acid synthesis regulation and, 115, 121, 123

Cuphea wrightii fatty acid synthesis regulation and, 125

Cyanide-resistant alternative mitochondrial respiratory pathway alternative oxidase and,

703–28 Cyanobacteria

photosystem II and, 641 Cyanobacterial circadian rhythms

adaptive significance of clock, 347-48

bioluminescence reporter utility automated screening of thousands of colonies for circu-

sands of colonies for circadian phenotypes, 336–38 reporter reliability, 336 case for circadian clock in cyanobacteria

diazotrophy-photosynthesis paradox, 330–32 genetics, 333–35 prokaryotic circadian clock

prokaryotic circadian clock, 332–33 cell cycle relationship to,

346–47 cyanobacterial circadian clock circadian oscillator in

Synechococcus, 342–43 input pathways, 345–46 output pathways, 343–45 evolution of clocks, 348–49 introduction, 328–30 rhythmic gene expression,

337, 339–42 Cyanophyta and CO₂ and more efficient

plants, 616 Cyanothece10 sp. cyanobacterial circadian rhythms and, 329, 333, 345

Cyclamen sp. pollination regulation and, 559 Cyclic adenosine monophosphate (cAMP)

fluorescent microscopy of living plant cells and, 179

fluorescent microscopy of living plant cells and, 182 Cycloheximide oxidative burst in disease resistance and, 260, 262 Cymbidium sp.

pollination regulation and, 550-51, 560-61

Cypripedium sp. pollination regulation and, 552 Cysteine

alternative oxidase and, 711–12, 715, 722 aquaporins and, 410–11 ethylene response pathway in Arabidopsis and, 284 oxidative burst in disease resistance and, 262

Cystine ethylene response pathway in Arabidopsis and, 287

Cytochrome c oxidase and CO₂ and more efficient plants, 623–26

Cytochrome pathway of respiration alternative oxidase and, 703-28

Cytokinin angiosperm shoot apical meristem development and, 685, 688-90, 693

auxin biosynthesis and, 53 ethylene response pathway in Arabidopsis and, 280 fluorescent microscopy of living plant cells and, 168–71,

plant transformation and, 313

and transport of proteins and nucleic acids through plasmodesmata, 31, 40

Cytoplasm aquaporins and, 421–22 disease resistance genes and, 580, 582–84 and oxygen deficiency and

root metabolism, 223 phloem unloading and, 203-4, 208

pollen germination and, 468 symbiotic membranes from legume nodules and, 493, 499

Cytoplasmic bridges and transport of proteins and nucleic acids through plasmodesmata, 28

Cytoplasmic male sterility trait plant transformation and, 320 Cytoskeleton

oxidative burst in disease resistance and, 256 pollen germination and, 461 and transport of proteins and nucleic acids through plasmodesmata, 31, 34–35 Cytosol auxin biosynthesis and, 62 fatty acid synthesis regula-

fatty acid synthesis and, 02 fatty acid synthesis regulation and, 113, 119 fluorescent microscopy of living plant cells and, 168, 169, 175, 183

oxidative burst in disease resistance and, 251, 255, 257, 263

phloem unloading and, 203 starch granule synthesis and, 69-70

symbiotic membranes from legume nodules and, 508-9, 513-14

and transport of proteins and nucleic acids through plasmodesmata, 38

D

D1-D2-cyt b559 complex photosystem II and, 659-61 D₂O

auxin biosynthesis and, 52, 54, 61

D3 protein gibberellin biosynthesis and, 440

dad1 mutant angiosperm shoot apical meri-

meristem development and, 687 Dark CO₂ burst C₂ cycle and, 18

dark dier mutants alternative oxidase and, 708 Dark respiration and CO₂ and more efficient

plants, 624-27 Datura sp.

pollination regulation and, 559 Dc3 gene

pollen germination and, 464 dct genes symbiotic membranes from

legume nodules and, 499–500 Deblurring calculation fluorescent microscopy of living plant cells and, 172

Debranching enzymes starch granule synthesis and, 67, 79–80

Decanal cyanobacterial circadian rhythms and, 335–36

pollen germination and, 480 Defenses

disease resistance genes and, 575–79, 595 jasmonates and, 373–75 oxidative burst in disease resistance and, 251-69 programmed cell death and, 525-26, 530, 536-37, 539, 541

DEF gene and transport of proteins and nucleic acids through plasmodesmata, 39

Deficiency oxygen

root metabolism and, 223-43 Dehydration

pollen germination and, 461, 463–65, 479–81 programmed cell death and, 526, 533

Deletion mutations in vitro transcription systems and, 384

Demethylation sequences plant transformation and, 312 Dendrobium sp. pollination regulation and,

550, 552

Dense matrix actin

pollen germination and, 469 Dephosphorylation oxidative burst in disease re-

sistance and, 258 programmed cell death and, 537

Deplasmolysis

aquaporins and, 406
Dermal cell complex
phloem unloading and, 198

Designer probes fluorescent microscopy of living plant cells and, 179

Desmotubule and transport of proteins and nucleic acids through plasmodesmata, 28

Development angiosperm shoot apical meristem, 673–97 flower

pollination regulation and, 547–68 seed, 202

jasmonates and, 367–68, 373–75 sink, 202–3

Dexamethasone chemical control of gene induction and, 100

Dextrans fluorescent microscopy of living plant cells and, 166, 169 and transport of proteins and

nucleic acids through plasmodesmata, 35–36, 43, 45 DHAP reductases

C₂ cycle and, 24

Diacylglycerol fatty acid synthesis regulation and, 112 Diacylglycerol acyltransferase

fatty acid synthesis regulation and, 123-24

Diazotrophy-photosynthesis paradox

cyanobacterial circadian rhythms and, 330-32, 348 Dicarboxylate transport

symbiotic membranes from legume nodules and, 499–500

Dichloroisonicotinic acid oxidative burst in disease resistance and, 267 programmed cell death and,

538

Dicotyledons

angiosperm shoot apical meristem development and, 677 chemical control of gene induction and, 95

fatty acid synthesis regulation and, 113, 118 fluorescent microscopy of liv-

ing plant cells and, 182 in vitro transcription systems and, 383–84

phloem unloading and, 198–99 Dictyostelium sp.

fluorescent microscopy of living plant cells and, 183 pollen germination and, 471

DIC video microscopy fluorescent analog cytochemistry and, 178

N,N-Diethyldithiocarbamate oxidative burst in disease resistance and, 257

Diffusion

aquaporins and, 402-3, 405, 407

phloem unloading and, 191, 195, 203

Dimerization

disease resistance genes and, 589

Dioxygenases gibberellin biosynthesis and, 432–33, 440–47

Diphenylyene iodinium oxidative burst in disease resistance and, 257

Disease resistance

genes
Arabidopsis, 580, 582–83
Cf. 584–87
encoding cytoplasmic proteins, 580, 582–84
encoding proteins with extracytoplasmic domains, 584–87
evolution, 597–601

Fen, 583-84 flax, 582-83

genetic basis of plant defense, 576–79

heterologous plant species, 596 introduction, 576

introduction, 576 isolated, 580–84 L6, 582–83 N, 582–83

pathogen recognition, 588–89

plant-pathogen associations, 576-79 Prf, 583-84

Pto, 583-84 R, 579-602 rice, 587

RPMI, 580, 582 RPP5, 582-83

R protein motifs, 588–94 RPS2, 580, 582 signal transduction, 589–94

tobacco, 582-83 tomato, 583-87 Xa21, 587

jasmonates and, 355, 367, 372-73 oxidative burst and, 251-69

dis mutants trichome development in

Arabidopsis and, 142
Disulfide bonds
alternative oxidase and, 715,

722 Dithiothreitol oxidative burst in disease re-

sistance and, 260 Dityrosine bridges programmed cell death and,

530 Diversity

genetic

disease resistance genes and, 599 plant transformation and, 320

plant transformation and, 320 plant transformation and, 297 DNA

cyanobacterial circadian rhythms and, 334, 339, 343, 347

jasmonates and, 365 plant transformation and, 300, 302, 304–5, 308–9, 311 programmed cell death and, 528

trichome development in Arabidopsis and, 141 DNA-binding protein alternative oxidase and, 720

DNA ladders programmed cell death and, 534

Domains

chemical control of gene in-

duction and, 100-2

disease resistance genes and, 581, 584, 585–87, 590–91 ethylene response pathway in

Arabidopsis and, 284, 286–87

and transport of proteins and nucleic acids through plasmodesmata, 39-40, 42-45

Dominant negative mutants chemical control of gene induction and, 98

Doritis sp. pollination regulation and, 552

Double-stranded DNA (dsDNA)

and transport of proteins and nucleic acids through plasmodesmata, 33-34

Downstream electron transport alternative oxidase and, 703, 720, 723–25

Downy mildew fungus disease resistance genes and, 583

Dried sepal injury pollination regulation and, 550 Drosophila exuperantia

fluorescent microscopy of living plant cells and, 182

Drosophila melanogaster chemical control of gene induction and, %

Drosophila sp.
chemical control of gene induction and, 104

cyanobacterial circadian rhythms and, 329, 333, 337, 349

disease resistance genes and, 583, 590-92 fluorescent microscopy of liv-

ing plant cells and, 183 dsDNA

See Double-stranded DNA Duchesnea indica and CO₂ and more efficient plants, 623

Dwarf-3 gene gibberellin biosynthesis and, 431, 440

E

E1A-HBD fusion protein chemical control of gene induction and, 101 Early genes

pollen germination and, 478

Ecdysone receptor chemical control of gene induction and, 104

Echinochloa crus-pavonis and oxygen deficiency and root metabolism, 235 Echinochloa phyllopogon and oxygen deficiency and root metabolism, 230-31, 235

Economic issues plant transformation and, 297, 320

Ecosystems native

and CO₂ and more efficient plants, 609–10, 613–14, 618, 627–29

EFE gene jasmonates and, 367 Effectors

chemical control of gene induction and, 103-4

CO₂ and, 609–29 plant transformation and,

297, 317-19 Efflux phloem unloading and, 191

ein mutants ethylene response pathway in Arabidopsis and, 279, 281, 283, 292

gibberellin biosynthesis and, 450

jasmonates and, 373 programmed cell death and, 527

eirl mutant ethylene response pathway in Arabidopsis and, 278, 280,

283
Elasticity
aquaporins and, 401
Electron crystallography

photosystem II and, 641–43, 652, 655–59 Electron microscopy and transport of proteins and

and transport of proteins and nucleic acids through plasmodesmata, 33, 42 Electron transport

alternative oxidase and, 703-6, 714-16, 718, 720, 722, 724-26, 728 and CO₂ and more efficient plants, 623-26 fatty acid synthesis regula-

tion and, 122 photosystem II and, 643, 646–47

Electrophile-responsive element oxidative burst in disease re-

Electrophoresis fatty acid synthesis regulation and, 116 Electrophysiology

sistance and, 262

fluorescent microscopy of living plant cells and, 169–71 Elicitors

chemical control of gene induction and, 89–90, 93–94 oxidative burst in disease resistance and, 256–57, 259–63, 265 programmed cell death and,

531, 533-35 Elodea densa aquaporins and, 406

Elodea nuttallii aquaporins and, 406

Elodea sp. aquaporins and, 418

Elongation ethylene response pathway in Arabidopsis and, 277, 280, 289

fluorescent microscopy of living plant cells and, 169 in vitro transcription systems and 383-86 389 395

and, 383-86, 389, 395 emb22 mutants angiosperm shoot apical meristem development and,

679-81 Embruo

Embryo angiosperm shoot apical meristem development and, 673–74, 677–85 gibberellin biosynthesis and,

441–42 plant transformation and, 303, 305, 307, 313 pollination regulation and,

547, 555 starch granule synthesis and, 75-78, 82

Endocytobioses symbiotic membranes from legume nodules and, 515

Endonucleases programmed cell death and, 534–37

Endonucleocytic cleavage programmed cell death and, 534

Endoplasmic reticulum (ER) fatty acid synthesis regulation and, 111–12, 114–15 fluorescent microscopy of living plant cells and, 169, 180

and transport of proteins and nucleic acids through plasmodesmata, 28-29, 37

Endoreduplication trichome development in Arabidopsis and, 141 Endosperm

auxin biosynthesis and, 54 gibberellin biosynthesis and, 435, 437, 441–42, 445 starch granule synthesis and, 69–70, 72, 78, 80 Energy budget and CO₂ and more efficient plants, 614

"Energy overflow" model alternative oxidase and, 714, 723

En gene and oxygen deficiency and root metabolism, 238

Enhancers plant transformation and,

Enoyl-ACP reductase fatty acid synthesis regulation and, 113

ent-copalyl diphosphate synthase

gibberellin biosynthesis and, 431, 435–36, 438–39, 453 ent-kaurene synthase

gibberellin biosynthesis and, 431–39, 453

Envelope plastid

fatty acid synthesis regulation and, 121

Environment

alternative oxidase and, 704, 726

and CO₂ and more efficient plants, 627 ethylene response pathway in

Arabidopsis and, 283 fluorescent microscopy of living plant cells and, 178–79 jasmonates and, 358 programmed cell death and,

526–27 Enzymes

alternative oxidase and, 714–18 auxin biosynthesis and, 53 cyanobacterial circadian

rhythms and, 330, 339, 349 ethylene response pathway in Arabidopsis and, 278, 288, 291–92

fatty acid synthesis regulation and, 112-19, 127-28, 131 gibberellin biosynthesis and, 431-54

jasmonates and, 355, 359-65 plant transformation and, 300-1

starch granule synthesis and, 67–71, 75–80 symbiotic membranes from

legume nodules and, 514–15 Epicotyls

gibberellin biosynthesis and, 450 phloem unloading and, 199

Epidendron sp. pollination regulation and, \$52 Epidermal cells fatty acid synthesis regulation and, 109-10 fluorescent microscopy of living plant cells and, 173-74, 178, 185 plant transformation and, 313 and transport of proteins and nucleic acids through plasmodesmata, 43-44 trichome development in Arabidopsis and, 137, 140 Epipactis sp. pollination regulation and, 552 **Epistasis** ethylene response pathway in Arabidopsis and, 280, 283 Equilibrium C2 cycle and, 20 fatty acid synthesis regulation and, 116-17 jasmonates and, 357-59 phloem unloading and, 194, 204 See Endoplasmic reticulum **ERE-binding** proteins ethylene response pathway in

ethylene response pathway in Arabidopsis and, 288 erecta gene disease resistance genes and, 597

597 gibberellin biosynthesis and, 446, 449

Eriophorum vaginatum and CO2 and more efficient plants, 628 ers mutant ethylene response pathway in

Arabidopsis and, 284, 290
Erwinia caratovora
oxidative burst in disease resistance and, 260

programmed cell death and, 538

Escape-free selection plant transformation and, 300 Escherichia coli

alternative oxidase and, 706, 709 chemical control of gene induction and, 96–98 cyanobacterial circadian rhythms and, 334, 337, 340

ethylene response pathway in Arabidopsis and, 283 fatty acid synthesis regulation and, 113, 121–22, 124

fluorescent microscopy of living plant cells and, 180, 182-83 gibberellin biosynthesis and,

436–37, 444 jasmonates and, 372 and oxygen deficiency and root metabolism, 239 starch granule synthesis and, 71, 78

Estrogen receptor chemical control of gene induction and, 101

eTAE1 gene ethylene response pathway in Arabidopsis and, 286

Ethanol alternative oxidase and, 725

Ethylene jasmonates and, 368, 373 pollination regulation and, 547, 549–51, 556–58, 560–67

programmed cell death and, 527-28, 539

Ethylene response pathway trichome development in Arabidopsis and constitutive response mutants, 281-83 CTR1 protein kinase, 286-88 downstream components, 288-89 epistasis analysis, 283 ethylene-insensitive mutants, 278-80 ETR1 gene, 283-86 genetic analysis, 278-81 introduction, 278 model for ethylene signaling. 289-92 signal transduction, 286, 289-92

Ethyl methanesulfonate cyanobacterial circadian rhythms and, 342

eti mutants ethylene response pathway in Arabidopsis and, 280

ethylene response pathway in Arabidopsis and, 279, 281, 283–86, 290–91 Eubacteria

photosynthetic cyanobacterial circadian rhythms and, 327

Eucalyptus sp. and CO₂ and more efficient plants, 628

Eukaryotes alternative oxidase and, 709 chemical control of gene induction and, 101 cyanobacterial circadian rhythms and, 327, 332, 347 fatty acid synthesis regulation and, 111–12, 115

Evacuolated protoplasts extracts in vitro transcription systems and, 392 Evapotranspiration and CO₂ and more efficient

plants, 613–14, 629 Evolution

C₂ cycle and, 12–13, 16, 18 cyanobacterial circadian rhythms and, 348–49 disease resistance genes and, 579, 597–601

Evolutionary conservation chemical control of gene induction and, 100 ethylene response pathway in *Arabidopsis* and, 288 programmed cell death and, 528

Excitation fluorescent microscopy of liv-

ing plant cells and, 178 Exons alternative oxidase and, 712

Exon shuffling disease resistance genes and, 599

Expansion trichome development in Arabidopsis and, 149–50

Explants plant transformation and, 303, 306

External signals cyanobacterial circadian rhythms and, 327

Extracellular domain ethylene response pathway in Arabidopsis and, 284

Extracellular matrix pollen germination and, 461, 474

Extract preparation in vitro transcription systems and, 387–92

Extracytoplasmic domains disease resistance genes and, 584–87

F

FACE studies
See Free Air Carbon Enrichment studies
F-actin
and transport of proteins and
nucleic acids through plasmodesmata, 34
fud genes
fatty acid synthesis regulation and, 127

jasmonates and, 361 fasciated mutant angiosperm shoot apical meristem development and, fascicled ear1 mutant angiosperm shoot apical meristem development and, 687 fass mutant

auxin biosynthesis and, 58

Fatty acids regulation of synthesis acetyl-CoA carboxylase,

117–18 biochemical controls, 115–19 cofactor supply, 121–22 compartmentalization,

111-12 enzyme systems, 112-19 excess presence of many en-

zymes of fatty acid synthesis, 127–28 fatty acid composition of

seeds can be more radically altered than other tissues, 126

feedback regulation, 119–22 gene expression control, 128–31

interorganelle communication, 111-12 introduction, 110-12

multigene familes, 128 oil production by seed, 122–26

oil quality manipulation. 126–27

promoter analysis, 128 rate-limiting steps, 115–19 sink, 124–26 source, 123 substrate control, 121–22

transgenic plants and mutants, 126

Fatty acid synthase fatty acid synthesis regulation and, 112–14, 117–19, 121–22, 125, 129–30

Feedback regulation auxin biosynthesis and, 56–57 fatty acid synthesis regulation and, 109, 119–22, 131 gibberellin biosynthesis and, 431, 447–49

Fen gene disease resistance genes and, 583–84

Fermentation and oxygen deficiency and root metabolism, 223

Fertilization pollination regulation and, 547 Feruloyl

oxidative burst in disease resistance and, 261 Fick's law

phloem unloading and, 203 Filaments

and transport of proteins and nucleic acids through plasmodesmata, 28, 30, 34 Filtration

aquaporins and, 401
Fine control
in electron partitioning
alternative oxidase and, 721–23

Fixation

cyanobacterial circadian rhythms and, 330–33, 347 ethylene response pathway in *Arabidopsis* and, 291 oxygen

C₂ cycle and, 16, 19

Flag leaves and CO₂ and more efficient plants, 618

Flavin mononucleotide reduced cyanobacterial circadian rhythms and, 336, 339

Flavonoids alternative oxidase and, 720 pollen germination and, 467-68

Flax

disease resistance genes and, 578, 582–83, 598–99 jasmonates and, 364 plant transformation and, 315

Flowering

angiosperm shoot apical meristem development and, 685–89 chemical control of gene induction and, 92 ethylene response pathway in Arabidopsis and, 278, 289 jasmonates and, 367, 371–72

plant transformation and, 313 pollination regulation and, 547–68 Fluaxifop

fatty acid synthesis regulation and, 118 Fluorescence resonance energy

transfer (FRET) living plant cells and, 170, 172 Fluorescent analog cytochemis-

living plant cells and, 178 Fluorescent indicators living plant cells and, 177–79

Fluorescent microscopy of living plant cells aequorin, 179–81 caged probes, 183–84 computational approaches, 172

confocal microscopy, 173–77 conventional fluorescence imaging, 166–67 fluorescence ratio analysis, 167–69 fluorescence resonance energy transfer, 170, 172 fluorescent analog cytochemistry, 178 fluorescent lindicators, 177–79 green fluorescent protein, 180–83 microscopes and imaging technology, 166–77 perspectives, 184–85 protein biosensors, 178–79 simultaneous ion imaging and electrophysiology,

169-71 three-dimensional fluorescence microscopy, 172-77 transgenic reporter technology, 179-83 two-photon microscopy,

176-77

"Foot" pollen germination and, 465 Foreign genes

plant transformation and, 311, 319

Forest floor

and CO₂ and more efficient plants, 623

Formamide hydrolyase alternative oxidase and, 707 Forsythia

pollen germination and, 468 Fragmentation programmed cell death and, 534

Free Air Carbon Enrichment (FACE) studies and CO₂ and more efficient plant, 611, 613

Freeze etch/fracture photosystem II and, 641–43, 648

Freezing stress

programmed cell death and, 540

Fremyella diplosiphon cyanobacterial circadian rhythms and, 346 frequency gene

cyanobacterial circadian rhythms and, 343

FRET See F

See Fluorescence resonance energy transfer

Fructans

jasmonates and, 368 Fructose and CO₂ and more efficient

plants, 620 starch granule synthesis and, 69

Fruit

ethylene response pathway in Arabidopsis and, 277–78, 286

fleshy terminal reproductive storage sinks and, 201 jasmonates and, 355, 367. programmed cell death and, 527 Fungal resistance gnat jasmonates and, 373 Fungi alternative oxidase and, 703-4, 706-7, 711, 720 disease resistance genes and, 577-78, 583, 602 oxidative burst in disease resistance and, 257, 259, 264, pollen germination and, 469 programmed cell death and, 528, 532-33, 535, 538 Fusions chemical control of gene induction and, 101 evanobacterial circadian rhythms and, 339-40, 342 ethylene response pathway in Arabidopsis and, 284 fluorescent microscopy of livng plant cells and, 182, 183-84

G

GAL4 estrogen receptor binding domain chemical control of gene induction and, 101 Gal4 protein and transport of proteins and nucleic acids through plasmodesmata. 39

modesmata, 39

Gamete
male
pollen germination and, 461

Gametophytes development pollination regulation and, 547, 552–55 ethylene response pathway in

Arabidopsis and, 281 ga mutants gibberellin biosynthesis and,

435
Gap junctions
and transport of proteins and

nucleic acids through plasmodesmata, 30 Gas chromatography-mass

spectrometry alternative oxidase and, 727 Gating

cyanobacterial circadian rhythms and, 347 G box in vitro transcription systems and, 391

GBSSI See Granule-bound starch synthase I, 76

Gelling agents plant transformation and, 310 Gene-dosage effect

gibberellin biosynthesis and, 448

Gene-for-gene interaction disease resistance genes and, 575, 578 programmed cell death and,

529, 541 Genes

alternative oxidase and, 703–28 angiosperm shoot apical meristem development and, 673–97

aquaporins and, 408, 410, 416–17, 423 auxin biosynthesis and, 51, 53–62

chemical control of gene induction and, 89–104 and CO₂ and more efficient plants, 620–21 cyanobacterial circadian rhythms and, 327, 329,

333–48 disease resistance and, 575–602

ethylene response pathway in Arabidopsis and, 277–92 fatty acid synthesis regulation and, 109, 112, 119, 126–31

fluorescent microscopy of living plant cells and, 182 gibberellin biosynthesis and, 431–54

in vitro transcription systems and, 383–84, 388–89, 391–96 jasmonates and, 355,

359–61, 363–75 oxidative burst in disease resistance and, 251–52, 254–55, 257–63, 265–66, 268–69

and oxygen deficiency and root metabolism, 236–39 phloem unloading and, 203 photosystem II and, 644–45 plant transformation and, 297, 299–301, 303, 305–20 pollen germination and, 461, 464–84

programmed cell death and, 529–40 starch granule synthesis and, 68–71, 75–80, 82–83

symbiotic membranes from legume nodules and, 499, 50.3 and transport of proteins and nucleic acids through plasmodesmata, 30, 38–40, 46 trichome development in Arabidopsis and, 137–60

Genetic engineering oxidative burst in disease resistance and, 269

Germination ethylene response pathway in Arabidopsis and, 277–78 gibberellin biosynthesis and, 440

jasmonates and, 367-68 pollen tube growth and, 461-84

Germline cells plant transformation and, 313

Germplasm plant transformation and, 312 GFP

See Green fluorescent protein

G-free sequence system in vitro transcription systems and, 386

GH2/4 promoter chemical control of gene induction and, 95

Gibberella fujikuroi gibberellin biosynthesis and, 439

Gibberellic acid fluorescent microscopy of living plant cells and, 175

Gibberellin biosynthesis dioxygenases, 440–47 ent-copalyl diphosphate synthase, 435–36, 438 ent-kaurene synthesis, 433–39 feedback regulation, 447–49

12α-hydroxylase, 441–42 13-hydroxylase, 441–42 2β-hydroxylases and related enzymes, 447–48 3β-hydroxylases and related enzymes, 444–47 introduction, 432–33

light regulation, 449–51 monooxygenases, 439–40 7-oxidase, 441 20-oxidases, 442–44 regulation, 447–52

sites, 452–53 temperature regulation, 451–52 pollination regulation and, 555

GL genes trichome development in Arabidopsis and, 151–53, 155–57 Gliadin

in vitro transcription systems and, 391

Globodera rostochiensis disease resistance genes and, 587

Globular particles and transport of proteins and nucleic acids through plasmodesmata, 28

Gloeocapsa sp. cyanobacterial circadian rhythms and, 331

GLO gene

and transport of proteins and nucleic acids through plasmodesmata, 39

Glossina sp. alternative oxidase and, 706

β1-Glucanase ethylene response pathway in Arabidopsis and, 288

Glucans programmed cell death and, 535

starch granule synthesis and, 79, 82

Glucocorticoid receptor chemical control of gene induction and, 100

and CO₂ and more efficient plants, 620–21 phloem unloading and, 201 starch granule synthesis and, 69, 72–73, 75, 77, 79

Glucose oxidase oxidative burst in disease resistance and, 259–60

β-Glucuronidase (GUS) chemical control of gene induction and, 91–92, 98 fatty acid synthesis regulation and, 128–29

plant transformation and, 300 and transport of proteins and nucleic acids through plasmodesmata, 36

trichome development in Arabidopsis and, 142 Glutamate

auxin biosynthesis and, 62 fluorescent microscopy of living plant cells and, 171 symbiotic membranes from legume nodules and, 498, 505-6

Glutamine

alternative oxidase and, 709 symbiotic membranes from legume nodules and, 498, 505 Glutamine PRPP amidotrans-

ferase cyanobacterial circadian rhythms and, 339 Glutathione-S-peroxidase oxidative burst in disease resistance and, 265

Glutathione-S-transferase oxidative burst in disease resistance and, 261-62

Glyceria maxima and oxygen deficiency and root metabolism, 235

Glycine auxin biosynthesis and, 61

symbiotic membranes from legume nodules and, 498, 505 Glycine max

pollen germination and, 481 Glycogen

starch granule synthesis and, 78

Glycolate C2 cycle and, 1, 3, 9–12, 18 Glycolysis

alternative oxidase and, 706, 722-23, 725

Glyoxylate alternative oxidase and, 726 gp91

oxidative burst in disease resistance and, 257

G proteins oxidative burst in disease resistance and, 255, 256, 258-59

Graminaceae auxin biosynthesis and, 59 fatty acid synthesis regulation and, 113, 118

Granule-bound starch synthase I (GBSSI) starch granule synthesis and, 76–77, 80–83

Grape phloem unloading and, 201 Grasslands

and CO₂ and more efficient plants, 614

Green blimps angiosperm shoot apical meristem development and, 679 Green fluorescent protein

(GFP) fluorescent microscopy of living plant cells and, 165, 179-84

and transport of proteins and nucleic acids through plasmodesmata, 34

Greenhouse effect and CO₂ and more efficient plants, 629 Green plants

photosystem II and, 641–65 GroEL homologs

and transport of proteins and nucleic acids through plasmodesmata, 37 Growth

jasmonates and, 367-68

Growth ring starch granule synthesis and, 74

Gs15 gene pollen germination and, 481

gst gene chemical control of gene induction and, 94–95 oxidative burst in disease resistance and, 261–62, 265–66, 268

GTPase

and transport of proteins and nucleic acids through plasmodesmata, 40-41

Guard cells fluorescent microscopy of living plant cells and, 184–85 gurke mutants

angiosperm shoot apical meristem development and, 679–81

GUS

See **B**-Glucuronidase

H

H* fluorescent microscopy of living plant cells and, 167 oxidative burst in disease resistance and, 259

H*-ATPase oxidative burst in disease resistance and, 258 phloem unloading and, 201 symbiotic membranes from

legume nodules and, 515 H*/K* exchange programmed cell death and, 531

"Hair trigger"

disease resistance genes and, 601

Halobacterium halobium ndl programmed cell death and, 536

Hansenula anomala alternative oxidase and, 706-9, 711, 720

Haustorium stage programmed cell death and, 532

H box

in vitro transcription systems and, 391

HC-toxin

disease resistance genes and, 577

Heat shock proteins fluorescent microscopy of living plant cells and, 182 and transport of proteins and nucleic acids through plasmodesmata, 37

Hel.a cells

chemical control of gene induction and, 101 in vitro transcription systems and, 384, 387, 389, 394

Helianthus annuus

and CO2 and more efficient plants, 620

Helicity

alternative oxidase and, 709, 711 starch granule synthesis and, 73, 80

Hemibiotrophy

disease resistance genes and,

HEPES buffer

fluorescent microscopy of living plant cells and, 171 Herbicide resistance

plant transformation and, 315 Herbivore resistance jasmonates and, 373-74

Herminium sp. pollination regulation and,

Herpes simplex virion protein 16 chemical control of gene in-

duction and, 100 Heteroblasty

leaf

trichome development in Arabidopsis and, 141

Heterocysts cyanobacterial circadian

rhythms and, 330, 335, 348 Heterologous genes aquaporins and, 411-13

chemical control of gene induction and, 91, 94, 96-104 cyanobacterial circadian rhythms and, 334

Heterozygosity programmed cell death and,

532 Hexokinase

and CO2 and more efficient

plants, 620-21 Hexoses

phloem unloading and. 198-99, 201, 204 Higher plants

alternative oxidase and, 723-26 Hill process C2 cycle and, 19

Histidine alternative oxidase and, 709 auxin biosynthesis and, 62

Histidine kinases ethylene response pathway in Arabidopsis and, 277, 283,

Histone deacetylase disease resistance genes and.

Histones

and transport of proteins and nucleic acids through plasmodesmata, 39

hls genes auxin biosynthesis and, 57

ethylene response pathway in Arabidopsis and, 278, 280, 789

HMGR gene

jasmonates and, 367, 372 Hml gene disease resistance genes and,

HOG1 protein

ethylene response pathway in Arabidopsis and, 291

Homeobox genes fluorescent microscopy of living plant cells and, 167 and transport of proteins and nucleic acids through plasmodesmata, 30, 38

Homeostasis fluorescent microscopy of liv-

ing plant cells and, 167 Homodimers fatty acid synthesis regula-

tion and, 118 Homology cyanobacterial circadian

rhythms and, 348 Homozygosity programmed cell death and,

Hooded mutant

angiosperm shoot apical meristem development and, 690

Hormone-binding domains chemical control of gene induction and, 101

Hormones auxin biosynthesis and, 54 ethylene response pathway in

Arabidopsis and, 277, 280 plant transformation and, 301, 306, 313

pollination regulation and, 547 programmed cell death and,

528 hrmA gene

oxidative burst in disease resistance and, 263

Hrp genes disease resistance genes and,

oxidative burst in disease resistance and, 254, 260, 262 programmed cell death and, 535

Hydration

pollen germination and, 463-65

Hydraulic conductivity aquaporins and, 399

Hydrogen peroxide (H2O2) alternative oxidase and, 720 oxidative burst in disease resistance and, 251, 255. 257-58, 260-68

programmed cell death and, 530-31, 535-37

Hydrolysis conjugate

auxin biosynthesis and, 51, 60-62

phloem unloading and, 198 Hydrostatic gradient aquaporins and, 401, 403, 418

Hydroxamic acids alternative oxidase and, 704 Hydroxyacyl-ACP dehydrase fatty acid synthesis regula-

tion and, 113 Hydroxylases

gibberellin biosynthesis and, 431, 435, 441-42, 444-48 Hydroxyproline

oxidative burst in disease resistance and, 261

Hydroxypyruvate alternative oxidase and, 726 Hypersensitive response

disease resistance genes and, 577, 579 oxidative burst in disease resistance and, 251-52, 254.

259, 261-66, 268 programmed cell death and, 525, 531-38

Hypocotyls

aquaporins and, 420-21 auxin biosynthesis and, 54 ethylene response pathway in Arabidopsis and, 278 jasmonates and, 358, 369 phloem unloading and, 199,

root metabolism, 223-43

trichome development in Arabidopsis and, 138

Hypoxia and oxygen deficiency and

I

See Indole-3-acetic acid iaaM gene auxin biosynthesis and, 57 iarl mutant

auxin biosynthesis and, 62 ILRI-like genes auxin biosynthesis and, 62 ilr/ mutant auxin biosynthesis and, 61 Imbibition pollen germination and, 464-65 Immunoblot analysis fatty acid synthesis regulation and, 120 Import rate phloem unloading and, 191, 199 Inactivation plant transformation and, 301, 312 Indo-1 fluorescent microscopy of living plant cells and, 168. 171, 176-77 Indole-3-acetic acid (IAA) conjugate hydrolysis, 60-61 biochemistry, 61 genetics, 61-62 de novo biosynthesis alf3 mutant, 60 analysis, 52-54 fass mutant, 58 feedback-insensitive anthranilate synthase, 56-57 indole-3-butyric acid biosynthesis, 60 large Lemna mutant, 58 mutants overproducing IAA, 54-58 mutants with possible defects in IAA biosynthesis, 59-60 nitrilases, 59-60 rooty phenotype, 57-58 tryptophan auxotrophs, 54-56 tryptophan-dependent, 54 future research, 62-63 introduction, 52 jasmonates and, 368 Inducible defenses programmed cell death and, 525, 540-41 Induction gene chemical control and, 89-104 ethylene response pathway in Arabidopsis and, 280, 291 Inflorescence branches angiosperm shoot apical meristem development and, 685-86 Inflorescences ethylene response pathway in Arabidopsis and, 280 jasmonates and, 364 Influenza virus and transport of proteins and nucleic acids through plasmodesmata, 39

Infringement

patent

chemical control of gene induction and, 94-95 Initiation in vitro transcription systems and, 383-86, 389, 393, 395 trichome development in Arabidopsis and, 141-42 Inositol-1,4,5-triphosphate (IP_3) fluorescent microscopy of living plant cells and, 184 Input pathways cyanobacterial circadian rhythms and, 345-46 Insect grazers and CO2 and more efficient plants, 609, 629 Insect resistance chemical control of gene induction and, 89 jasmonates and, 355, 367, 372 - 73plant transformation and. 314-15 Insertion sites gene cvanobacterial circadian rhythms and, 342, 344 plant transformation and, 312, 314 Integration aquaporins and, 418-20 cyanobacterial circadian rhythms and, 343 plant transformation and. 300, 305, 311-14, 318 Intellectual property plant transformation and, 297, 316-17 Internodal cells aquaporins and, 402-4, 409 Internucleosomal cleavage programmed cell death and, 528, 534 Interorgan communication pollination regulation and, 547, 565-67 Interorganelle communication fatty acid synthesis regulation and, 111-12 Intron-GUS regulatory reporter systems plant transformation and, 300 Introns alternative oxidase and, fatty acid synthesis regulation and, 129 in vitro transcription systems and, 394 plant transformation and, 311 Inventions

plant transformation and, 316

In genes

plant transformation and. 316-17 Invertase phloem unloading and, 198 In vitro transcription extract preparation, 387-88 nuclear extracts, 388 whole cell extracts, 388 future research, 395-96 in vitro transcription system preparation assay methods, 385-86 G-free sequence system, 386 primer extension assay, 386 RNAse protection assay, 386 run-off assay, 385 S1 mapping assay, 386 transcription complex assay, 385 introduction, 384 plant materials suspension-cell cultures, 387 wheat germ, 387 Pol I-dependent transcription, 394 Pol III-dependent transcription, 394-95 RNA polymerase II-dependent transcription convenient in vitro systems, 392-93 cultured cell extracts, 390-91 evacuolated protoplasts extracts, 392 wheat germ chromatin extract, 389-90 wheat germ extracts, 388-89 lon fluxes pollen germination and, 461, 472-73 programmed cell death and, Ion imaging fluorescent microscopy of living plant cells and, 169-71 See Inositol-1,4,5-triphosphate 1-ppaB protein and transport of proteins and nucleic acids through plasmodesmata, 40 See Isopropyl-B-D-thiogalactopyranoside ipt gene angiosperm shoot apical

meristem development and,

and oxygen deficiency and

and oxygen deficiency and

root metabolism, 235

root metabolism, 235

Iris germanica

Iris pseudoacorus

symbiotic membranes from legume nodules and, 512-14

Isodityrosine

oxidative burst in disease resistance and, 260

Isoflavone reductase oxidative burst in disease resistance and, 266

auxin biosynthesis and, 63 Isoleucine

auxin biosynthesis and, 61

Isoprenoids gibberellin biosynthesis and,

Isopropyl-B-D-thiogalactopyranoside (IPTG)-inducible gene expression

chemical control of gene induction and, 99-100

Isotope enrichment auxin biosynthesis and, 53_54

ivr gene auxin biosynthesis and, 57

jar genes jasmonates and, 366, 368 lasmonates accumulation, 358-60 biosynthetic pathway, 360-63

chemistry, 356-58 distribution, 358-60 introduction, 356 linolenic acid, 361-63 lipases, 361-63 lipoxygenase, 363-64 quantitation, 356-58

regulation, 360-63 Jellyfish

fluorescent microscopy of living plant cells and, 179-80 and transport of proteins and nucleic acids through plasmodesmata, 34

jin genes jasmonates and, 366, 368

aquaporins and, 418, 420 fluorescent microscopy of living plant cells and, 167, 170 oxidative burst in disease resistance and, 259

K25a protein-serine kinase inhibitor

oxidative burst in disease resistance and, 258, 163 programmed cell death and, 535-36, 539

Kap60 protein

and transport of proteins and nucleic acids through plasmodesmata, 40

Karyopherin

and transport of proteins and nucleic acids through plasmodesmata, 40

3-Ketoacyl-ACP

fatty acid synthesis regulation and, 113, 118-19, 121, 125, 127

Kinases

alternative oxidase and, 719 angiosperm shoot apical meristem development and, 692 ethylene response pathway in Arabidopsis and, 277, 282,

286-88, 291-92 oxidative burst in disease re-

sistance and, 258 pollen germination and, 482 programmed cell death and, 530, 534-35, 539

symbiotic membranes from legume nodules and, 510, 516

and transport of proteins and nucleic acids through plasmodesmata, 41-42

Kinetics aquaporins and, 404

Kits

caging fluorescent microscopy of living plant cells and, 183 Klehsiella sp.

symbiotic membranes from legume nodules and, 503

kn1 mutant

angiosperm shoot apical meristem development and, 679, 681, 685, 690-91, 694, 696

KN1 protein

and transport of proteins and nucleic acids through plasmodesmata, 30, 38-39, 41, 43

KNATI gene

angiosperm shoot apical meristem development and, 690-91, 695

knotted gene

fluorescent microscopy of living plant cells and, 167 and transport of proteins and nucleic acids through plasmodesmata, 30, 38-39

knox mutants

angiosperm shoot apical meristem development and, 695

L

L6 gene

disease resistance genes and, 582-83

Lac repressor/operator system chemical control of gene induction and, 97, 101

Laelia sp.

pollination regulation and, 552 LAM gene starch granule synthesis and, 76

Lamellae

starch granule synthesis and, 73-74

La mutant

angiosperm shoot apical meristem development and, 681-82

LAT52 gene

pollen germination and, 464, 483-84 Late genes

pollen germination and, 478, 482

Lateral inhibition trichome development in Arabidopsis and, 137

Lathyrus odoratus gibberellin biosynthesis and,

435 Leader sequences

plant transformation and, 311 Leaf area index and CO2 and more efficient

plants, 612-13

Leaf-disk PCR plant transformation and, 320 Leaf disk transformation

Agrobacterium, 304 Leaf spot disease

disease resistance genes and,

programmed cell death and, 528, 540

'Leaky" allele ethylene response pathway in Arabidopsis and, 283

Leaves

alternative oxidase and, 712 angiosperm shoot apical meristem development and, 673, 694-95

C2 cycle and, 1, 17, 23 chemical control of gene induction and, 99

and CO2 and more efficient plants, 612-14, 617-19, 623-24, 626-27

fatty acid synthesis regulation and, 110, 114, 117-19, 121-22, 129

fluorescent microscopy of living plant cells and, 180-81

gibberellin biosynthesis and,

jasmonates and, 364, 369-70, 374-75

oxidative burst in disease resistance and, 261, 263-64, 267-68

phloem unloading and, 199,

programmed cell death and, 527, 531, 536, 540 starch granule synthesis and,

69-7 and transport of proteins and

nucleic acids through plasmodesmata, 28, 35, 42-45 trichome development in Arabidopsis and, 138-42

Leek fatty acid synthesis regulation and, 110

Legal issues plant transformation and, 320

Leghemoglobin symbiotic membranes from legume nodules and, 514

Legume nodules symbiotic membranes of amino acid transport across bacteroid membranes, 505 amino acid transport across peribacteroid membrane.

ammonia transport across bacteroid membranes, 504 ammonium acid transport across peribacteroid membrane, 507-8

ATP concentrations, 510-11

bacteroid carbon metabolism, 497-99 calcium, 511

carbon compound transport across peribacteroid membrane, 500-2

carbon compound transport into isolated bacteroids. 499-502

carbon supply to bacteroids, 497-502

development of nitrogenfixing symbioses between legumes and rhizobia, 495-96 dicarboxylate transport, 499-500

energization of symbiotic membranes, 509-10 fixed nitrogen transport across, 502-8

inorganic nutrient transport to bacteroid, 511-12 introduction, 494-95 iron transport, 512-14

oxygen concentrations. protein kinases, 510 regulation of carbon and ni-

510-11

trogen exchange across symbiotic membranes, 509-10 sugar transport, 500

Legumes plant transformation and, 313

Legumin in vitro transcription systems and, 384

Lemna gibba auxin biosynthesis and, 54, 56, 58

Lesion mimics oxidative burst in disease re-

sistance and, 263 disease resistance genes and, 601

Lettuce

gibberellin biosynthesis and, 450 oxidative burst in disease re-

sistance and, 264 programmed cell death and, 534

Leucine

auxin biosynthesis and, 61-62 symbiotic membranes from legume nodules and, 498,

Leucine-rich repeats disease resistance genes and, 575, 580-81, 583-90, 594-97, 599

programmed cell death and, 530

Lhcb proteins photosystem II and, 664-65

Ligands angiosperm shoot apical meristem development and, 693

disease resistance genes and, 579, 587, 589, 597 Light/dark cues

cyanobacterial circadian rhythms and, 327 Light harvesting

alternative oxidase and, 719 and CO2 and more efficient plants, 609, 620, 628-29 photosystem II and, 641, 644-45, 649

Light microscopy living plant cells and, 165-66

Light regulation gibberellin biosynthesis and, 431, 449-51 Lilium auratum

alternative oxidase and, 707 Limnanthes sp. fatty acid synthesis regula-

tion and, 124 Limonium sp.

and oxygen deficiency and root metabolism, 229

Lindera benzoin and CO2 and more efficient plants, 626

Linolenic acid jasmonates and, 355, 361-63

Linum usitatissimum disease resistance genes and, 578, 582

Lipases

jasmonates and, 361-63 Lipid peroxidation oxidative burst in disease resistance and, 264

Lipids aquaporins and, 399, 414 fatty acid synthesis regula-

tion and, 109-31 Lipoxygenase abiotic stress, 369-71 allene oxide synthase.

364-65 defense, 373-75 development, 373-75 disease resistance, 372-73 flower development, 371-72

fruit development, 371-72 function, 367-75 insect resistance, 372-73 jasmonates and, 355, 360, 363-64

photosynthesis, 369-71 programmed cell death, 537 responsive genes, 367-75 seed germination, 367-68 seed growth, 367-68 senescence, 369-71 signal transduction, 365-66 storage proteins, 368-69

vegetative sinks, 368-69 Liriodendron tulipifera aquaporins and, 406

auxin biosynthesis and, 51 Long-distance signaling oxidative burst in disease resistance and, 269

Long-distance water transport aquaporins and, 399-400, 419-20

"Loop out" domain disease resistance genes and, 585 Loops

aquaporins and, 411 Lotus corniculatus alternative oxidase and, 707

Lox genes jasmonates and, 363-64, 367

programmed cell death and, 531

Isd1 gene oxidative burst in disease resistance and, 266

ls mutant angiosperm shoot apical meristem development and, 688

luc gene

cyanobacterial circadian rhythms and, 334, 341 luxAB reporter gene 1

cyanobacterial circadian rhythms and, 335, 337-39, 341-44

luxCDE genes

cyanobacterial circadian rhythms and, 337-38

Lycopene jasmonates and, 371

Lycopersicon esculentum disease resistance genes and, 584 gibberellin biosynthesis and,

435

Lysine and CO₂ and more efficient plants, 625

Lysophosphatidic acid acyltransferase fatty acid synthesis regulation and, 124

M

Maize

angiosperm shoot apical meristem development and, 675, 679, 682, 685–87, 694–96

auxin biosynthesis and, 54, 60-61

chemical control of gene induction and, 94 and CO₂ and more efficient

plants, 620 disease resistance genes and, 577, 508, 661

577, 598, 601 ethylene response pathway in

Arabidopsis and, 288 fatty acid synthesis regulation and, 118, 126

gibberellin biosynthesis and, 431, 437, 440, 446, 448 in vitro transcription systems

and, 384 plant transformation and, 315, 320

315, 320 pollen germination and, 477,

481 programmed cell death and, 539, 541

starch granule synthesis and, 70, 72, 76, 78-80

and transport of proteins and nucleic acids through plasmodesmata, 38

Major resistance complexes disease resistance genes and, 598

Malate

symbiotic membranes from legume nodules and, 499-500, 505

Male sterility hybrid system plant transformation and, 315, 320

Malto-oligosaccharides starch granule synthesis and, 82–83

Manduca sexta jasmonates and, 373

Manganese and CO₂ and more efficient plants, 614

Mangifera indica L. alternative oxidase and, 709, 711, 713

Mannuheptulose and CO₂ and more efficient plants, 620

MAP kinases ethylene response pathway in

Arabidopsis and, 282, 287, 291–92 jasmonates and, 360

Marah macrocarpus gibberellin biosynthesis and, 443, 445–46

Marker gene expression plant transformation and, 303

Marshlands and oxygen deficiency and root metabolism, 226, 241

root metabolism, 226, 241 Mastoporan oxidative burst in disease re-

sistance and, 259
Matrix attachment regions
plant transformation and, 312
Maturation mutants

trichome development in Arabidopsis and, 149, 151

Mature axial pathway phloem unloading and, 199-200

Medicago sativa and oxygen deficiency and root metabolism, 228

Medicarpin oxidative burst in disease resistance and, 266 Megagametophyte

development pollination regulation and, 554

MeJA protein jasmonates and, 360, 365 MEK protein kinase ethylene response pathway in Arabidopsis and, 287-88

Melampsora lini disease resistance genes and.

578, 598 Membrane integrity disruption programmed cell death and,

527, 535 Membranes symbiotic

legume nodules and, 493-516

Meristem apical root

and oxygen deficiency and root metabolism, 223–43 jasmonates and, 370 phloem unloading and, 200 plant transformation and

plant transformation and, 307, 313 shoot apical

angiosperm, 673–97 and transport of proteins and nucleic acids through plasmodesmata, 38–39

Mero-Cam fluorescent microscopy of living plant cells and, 179

ing plant cells and, 179
Mesembryanthemum crystallinum

aquaporins and, 413 Mesembryanthemum sp. aquaporins and, 418

Mesocotyls phloem unloading and, 200 Mesophyll

fatty acid synthesis regulation and, 109 phloem unloading and, 199 and transport of proteins and

and transport of proteins and nucleic acids through plasmodesmata, 35–36, 43–45 Metabolism

alternative oxidase and, 703, 706, 713, 715, 719–24, 726 angiosperm shoot apical meristem development and, 697 auxin biosynthesis and, 52–54, 60, 63

and CO₂ and more efficient plants, 616 cyanobacterial circadian

rhythms and, 327, 331, 348 fatty acid synthesis regulation and, 109–11, 115–16, 119, 122, 125–27, 130–31 jasmonates and, 374–75

oxidative burst in disease resistance and, 268 phloem unloading and, 195,

208 pollen germination and, 483–84

programmed cell death and, 541 oxygen deficiency and, 223-43

starch granule synthesis and, 69-70, 79

symbiotic membranes from legume nodules and, 493–516 Methionine

alternative oxidase and, 712 symbiotic membranes from legume nodules and, 498, 505, 507

fluorescent microscopy of living plant cells and, 167 in vitro transcription systems

and, 390

Microbes alternative oxidase and, 706 auxin biosynthesis and, 53 and CO₂ and more efficient

plants, 624 oxidative burst in disease resistance and, 259–60, 267 plant transformation and,

plant transformation and, 301 programmed cell death and,

Microfilaments

actin pollen germination and, 469-70

"Micro-HRs" oxidative burst in disease resistance and, 268

Microprojectiles DNA-coated plant transformation and, 304, 306, 308–9, 313, 316

Microsomes oxidative burst in disease resistance and, 255, 257

Microtubules fluorescent microscopy of living plant cells and, 173-74,

182 pollen germination and, 461–72 Migration

cyanobacterial circadian rhythms and, 349

Mimosa sp. cyanobacterial circadian rhythms and, 328

MIP homologs aquaporins and, 399, 408–410, 413

Mitochondria alternative oxidase and, 703-28

and CO₂ and more efficient plants, 623-24, 626 fatty acid synthesis regula-

tion and, 114 fluorescent microscopy of living plant cells and, 180, 182 and transport of proteins and nucleic acids through plasmodesmata, 37

Mlg resistance gene programmed cell death and, 532, 538 Mn²⁺

aquaporins and, 402 in vitro transcription systems and, 390-91

and, 390–91 and transport of proteins and nucleic acids through plasmodesmata, 30

Mn-superoxide dismutase programmed cell death and, 540

Molecular subversion plant transformation and, 311

Monoclonal antibodies jasmonates and, 358

Monocots angiosperm shoot apical meristem development and, 677

auxin biosynthesis and, 54 fatty acid synthesis regulation and, 113 fluorescent microscopy of living plant cells and, 182 in vitro transcription systems

and, 383–84 jasmonates and, 370 Monooxygenases gibberellin biosynthesis and, 431–32, 435, 439–40

Morphogenesis trichome development in Arabidopsis and, 137 Mougoetia sp.

C2 cycle and, 16 Movement protein-nucleic acid complexes

and transport of proteins and nucleic acids through plasmodesmata, 32-34

mp mutants angiosperm shoot apical meristem development and, 684, 689

mRNA See Messenger RNA Multigene families fatty acid synthesis regulation and, 128

Munch pressure flow hypothesis phloem unloading and, 194

Musaceae auxin biosynthesis and, 59 Mustard

and CO₂ and more efficient plants, 627 Mutants

Autants alternative oxidase and, 707–8 angiosperm shoot apical meristem development and, 675, 677–85, 687–97 auxin biosynthesis and, 51,

auxin biosynthesis and, 51, 54–63 chemical control of gene in-

duction and, 98 cyanobacterial circadian rhythms and, 329–30, 334, 338, 342–44, 348

ethylene response pathway in Arabidopsis and, 277–92 fatty acid synthesis regulation and, 112, 126–28

gibberellin biosynthesis and, 431, 435, 448, 450 in vitro transcription systems

and, 384 jasmonates and, 361, 365, 368, 372–73, 375

oxidative burst in disease resistance and, 263

plant transformation and, 319 pollen germination and,

465–66, 468, 471 programmed cell death and, 527–28, 531, 533, 540–41 starch granule synthesis and, 70–71, 75–80, 82–83 and transport of proteins and

and transport of proteins and nucleic acids through plasmodesmata, 46 trichome development in

Arabidopsis and, 138, 142–49 Mycelial walls programmed cell death and, 535

Myosin pollen germination and, 470-71

and transport of proteins and nucleic acids through plasmodesmata, 29

Myosin light chain kinase fluorescent microscopy of living plant cells and, 179

N

Na*

fluorescent microscopy of living plant cells and, 167 NADH

and CO₂ and more efficient plants, 625 symbiotic membranes from legume nodules and, 514

NADH dehydrogenase alternative oxidase and, 703, 707

NADPH

programmed cell death and, 530

792 NADPH oxidase oxidative burst in disease resistance and, 251, 255-57 programmed cell death and, NADPH reductase oxidative burst in disease resistance and, 266 NAG gene pollen germination and, 476 nahG gene oxidative burst in disease resistance and, 267 nam mutant angiosperm shoot apical meristem development and, 683 Napin jasmonates and, 367 narrowsheath mutant angiosperm shoot apical meristem development and, 695 Natural selection cyanobacterial circadian rhythms and, 348 disease resistance genes and, 598 ndr mutants programmed cell death and.

533 Necrosis disease resistance genes and, 600 oxidative burst in disease re-

sistance and, 263-64 NelF-4A8 gene pollen germination and, 480-81

Net ecosystem production and CO2 and more efficient plants, 627

Neurospora crassa alternative oxidase and. 706-9, 711-13 Neurospora sp.

cyanobacterial circadian rhythms and, 349

Neutrophils activated oxidative burst in disease resistance and, 251, 255, 257 NFL gene

angiosperm shoot apical meristem development and, 696 NF-ppaB protein oxidative burst in disease re-

sistance and, 262, 264 and transport of proteins and nucleic acids through plasmodesmata, 41

N gene disease resistance genes and, 582-83 Nicotiana benthamiana

disease resistance genes and,

Nicotiana cleveandii disease resistance genes and, 596

Nicotiana rustica in vitro transcription systems and, 394

Nicotiana sp. angiosperm shoot apical meristem development and, 688

pollen germination and, 468, 470

pollination regulation and. 555, 559

Nicotiana tahacum alternative oxidase and, 709,

aquaporins and, 406, 413 and CO2 and more efficient plants, 618

disease resistance genes and, 582, 596

pollen germination and, 472, 476, 479, 481, 483 nif genes

cyanobacterial circadian rhythms and, 333 symbiotic membranes from legume nodules and, 503-4

NIP1 peptide disease resistance genes and,

578 Nitella sp. aquaporins and, 415 C2 cycle and, 16 Nitellopsis sp. aquaporins and, 412

NIT genes auxin biosynthesis and, 59 Nitrilases auxin biosynthesis and,

59-60 Nitrogen fixation

and CO2 and more efficient plants, 609-10, 616, 618, 621, 626-29

cyanobacterial circadian rhythms and, 330-33, 347 ethylene response pathway in Arabidopsis and, 291 symbiotic membranes from legume nodules and. 493-500, 502-10

jasmonates and, 368-70, 372, 374-75

Nitrogenase

cyanobacterial circadian rhythms and, 330-31. 333-34, 347-48 membranes from legume nodules and, 493

Nodulation factors fluorescent microscopy of living plant cells and, 170

Nodules legume, 493-516 Nodulin

symbiotic membranes from legume nodules and, 501-2. 510, 515

2.5-Norbornadiene ethylene response pathway in Arabidopsis and, 285

NTP303 gene pollen germination and, 481, 483

NTPs See Nucleoside triphos-

phates ntr genes

symbiotic membranes from legume nodules and, 503-4 Nuclear condensation

programmed cell death and. Nuclear extracts

in vitro transcription systems and, 388

Nuclear genes alternative oxidase and, 703-4, 707-8, 711-13, 716-21, 726

and CO2 and more efficient plants, 620-21 plant transformation and,

297, 299, 311 Nuclear import

and transport of proteins and nucleic acids through plasmodesmata, 39-41 Nuclear localization signal

and transport of proteins and nucleic acids through plasmodesmata, 39-40 Nuclear magnetic resonance

(NMR) aquaporins and, 402, 406

Nuclear redox factor oxidative burst in disease resistance and, 262

Nucleic acids transport through plasmodesmata and, 27-46

Nucleoplasmin and transport of proteins and nucleic acids through plasmodesmata, 39

Nucleoporins and transport of proteins and nucleic acids through plasmodesmata, 40

Nucleoside triphosphates (NTPs)

in vitro transcription systems and, 385

Nutrient quality and CO2 and more efficient plants, 609

0

Oats

auxin biosynthesis and, 61 and CO₂ and more efficient plants, 627

Obligate parasites programmed cell death and, 526

OBP1 trans factor oxidative burst in disease resistance and, 262 Oil characteristics

plant transformation and, 315 Oil seeds

fatty acid synthesis regulation and, 109-10, 116, 122-27

Oleosins pollen germination and, 466-67

Oligomeric state photosystem II and, 641, 643 Oligosaccharides

jasmonates and, 360, 375 Oncidium sp. pollination regulation and,

550, 555 Open reading frames (ORFs) cyanobacterial circadian rhythms and, 343

optical sectioning fluorescent microscopy of living plant cells and, 172

Optimal defense theory jasmonates and, 374 Orchis sp.

pollination regulation and, 555 ORFs See Open reading frames

Organelles and CO₂ and more efficient

plants, 625 fatty acid synthesis regulation and, 111–12 fluorescent microscopy of living plant cells and, 168–69

plant transformation and, 299, 303 symbiotic membranes from legume nodules and, 493

Organogenesis plant transformation and, 313

Oryza sativa gibberellin biosynthesis and,

orp gene auxin biosynthesis and, 54 Oscillator

circadian cyanobacterial circadian rhythms and, 342-43

Oscillatory growth pollen germination and, 477–78

Oscillatoria sp. cyanobacterial circadian rhythms and, 331

OSHI gene angiosperm shoot apical meristem development and, 682

Osmosis aquaporins and, 399, 401–4, 406, 411, 415, 418–19, 421–22

in vitro transcription systems and, 388

jasmonates and, 368

Osmotin jasmonates and, 367, 372 Output pathways cyanobacterial circadian rhythms and, 343–45

Ovary development pollination regulation and, 555-56

Ovule pollen germination and, 461 pollination regulation and, 547, 552–55 Oxidases

alternative, 703–28 gibberellin biosynthesis and, 431, 435, 438, 441–44 Oxidative burst

htdative burst in disease resistance biology, 254–55 chemistry of active oxygen in biological systems, 252–54 cross-linking in cell wall, 260–61

direct antimicrobial activity, 259-60 function, 259-69 functional integration, 264-66 gene activation, 261-62

hypersensitive cell death, 262-64 introduction, 252 mechanisms, 255-58 NADPH oxidase, 255-57 salicylic acid, 267-69 signal pathways, 258-59

transcription-dependent defenses, 261–62 programmed cell death and, 530, 534–35, 539

Oxidative stress alternative oxidase and, 703 2-Oxoglutarate-dependent di-

oxygenases gibberellin biosynthesis and, 431

L-Oxothiazolidine-4-carboxylate oxidative burst in disease resistance and, 265 Oxygen alternative oxidase and, 704, 707, 716–17, 720, 724, 727

C₂ cycle and, 1, 12–15, 20–21 and CO₂ and more efficient plants, 616

cyanobacterial circadian rhythms and, 330, 336, 339, 347-48

ethylene response pathway in Arabidopsis and, 291 oxidative burst in disease resistance and, 252–54

symbiotic membranes from legume nodules and, 510-11 Oxygen deficiency

root metabolism and anoxia avoidance by selective cell death and aerenchyma formation, 241–43 cell death in lysigenous aerenchyma formation, 241–43

cellular injury mechanism, 227–30

gene expression and protein synthesis under anoxia, 236-39

hypoxic acclimation to anoxia, 233–35 improved oxygen status of arenchymous roots, 241

introduction, 224 metabolism under anoxia, 226–39 oxygen status of cells and

tissues, 224–26 postanoxic injury, 235–36 resistance to anoxia, 230–33 signaling of hypoxia and anoxia, 239–40

OxyR oxidative burst in disease resistance and, 264 Ozone

oxidative burst in disease resistance and, 262 programmed cell death and, 540

P

p30 protein

and transport of proteins and nucleic acids through plasmodesmata, 34–36, 41–45 p33 protein

oxidative burst in disease resistance and, 260 p100 protein

oxidative burst in disease resistance and, 260

PAB proteins pollen germination and, 480

ethylene response pathway in Packing Arabidopsis and, 291 starch granule synthesis and, PCMBS 67, 73-74 pal gene See Parachloromercuribenzenesulfonic acid in vitro transcription systems PCR and, 392 See Polymerase chain reaction jasmonates and, 367, 372 oxidative burst in disease re-Pdc gene and oxygen deficiency and sistance and, 255, 268 root metabolism, 238 Palisade cells jasmonates and, 359 pdf gene Paphiopedilum sp. jasmonates and, 367, 373 Pea pollination regulation and, 550, 552 alternative oxidase and, 708 aquaporins and, 406 Papillae trichome development in and CO2 and more efficient plants, 618 Arabidopsis and, 141 fatty acid synthesis regula-Parachloromercuribenzenesulfonic acid (PCMBS) tion and, 112 fluorescent microscopy of liv-ing plant cells and, 173-74, phloem unloading and, 198-201 Paracoccus denitrificans gibberellin biosynthesis and, 435, 437, 439, 441-42, 444, alternative oxidase and, 706 Parasitism 446-53 programmed cell death and, in vitro transcription systems 526, 533 Parslev and, 384 phloem unloading and, 199 in vitro transcription systems starch granule synthesis and, and, 387, 392 75-77, 78, 82-83 oxidative burst in disease resistance and, 268 Peanut programmed cell death and. plant transformation and, 307 539 Pectin Particle bombardment pollen germination and, 474, plant transformation and, 477 PEG 302, 304-9, 313, 316 See Polyethylene glycol Partitioning electron Pennisetum ciliare alternative oxidase and, pollination regulation and, 555 706, 718-23 phloem unloading and, 191 Pennisetum setaceum Patent protection pollination regulation and, plant transformation and, 555 303, 316-17 Peptides jasmonates and, 355, 375 Pathogen attack alternative oxidase and, 703. Perianth senescence chemical control of gene inpollination regulation and. duction and, 90-91 549-51 disease resistance genes and, Peribacteroid membrane 575-602 symbiotic membranes from jasmonates and, 373 legume nodules and, 493-96. oxidative burst in disease re-500-2, 505-9, 515-16 sistance and, 251-69 period gene programmed cell death and, cyanobacterial circadian 525-41 rhythms and, 329, 343, 349 Patterning Permeability leaf plant membranes and,

angiosperm shoot apical

meristem development

cyanobacterial circadian

rhythms and, 337

and, 695

PBS2 protein

399-423

583

and transport of proteins and

nucleic acids through plasmodesmata, 30-31, 35-36

disease resistance genes and,

Peronospora parasitica

programmed cell death and, 532 Peroxidases oxidative burst in disease resistance and, 258, 266 Peroxisomes leaf C2 cycle and, 1, 16-18, 23 Petals trichome development in Arabidopsis and, 138 Petunia sp. angiosperm shoot apical meristem development and, 683, 686-87 pollen germination and, 477, 481 pollination regulation and, 549-50, 556-60, 564-65, 567 pexl gene pollen germination and, 477. 481 PGc9 gene pollen germination and, 481 PGP genes pollen germination and, 481 pH fluorescent microscopy of living plant cells and, 167, 169, 171 jasmonates and, 370 Phalaenopsis sp. pollinatio. egulation and, 550, 552-. 558, 561, 567 phan mutants angiosperm shoot apical meristem development and, 695 Phaseolus coccineus gibberellin biosynthesis and, 441 Phaseolus sp. cyanobacterial circadian rhythms and, 328 Phaseolus vulgaris aquaporins and, 413 and CO2 and more efficient plants, 620 gibberellin biosynthesis and, 435, 441, 445, 447 phloem unloading and, 204 Phase transition pollen germination and, 463-64 Phenolic compounds programmed cell death and, 530 Phenols jasmonates and, 375 Phenotype angiosperm shoot apical meristem development and,

689, 695, 697 auxin biosynthesis and, 57–58

chemical control of gene in-

duction and, 99, 102

cyanobacterial circadian rhythms and, 330, 336-38, 342_43 ethylene response pathway in Arabidopsis and, 280 fatty acid synthesis regulation and, 127 oxidative burst in disease resistance and, 263 plant transformation and. 299-301, 311, 314-15, 318, Phenylalanine auxin biosynthesis and, 61 oxidative burst in disease resistance and, 259 Phenylalanine ammonia-lyase oxidative burst in disease resistance and, 261 Phloem and transport of proteins and nucleic acids through plasmodesmata, 36-38, 43-45 Phloem unloading apoplasmic mechanisms and control, 210-13 cellular pathway, 195-97 apoplasmic mechanisms and control, 210 bulk flow, 204-7 diffusion, 203 efflux to apoplasm along post-sieve element pathway, 210-11 key sink types, 198-202 mature axial pathway, 199-200 mechanisms and controls, retrieval as key component of post-sieve element transport, 211-13 se-cc complexes, 209-10 sink development and function overview, 202-3 stem elongation zones, 199 symplasmic transport mechanisms, 203-9 terminal reproductive storage sinks, 201-2 terminal vegetative storage sinks, 200-1 vegetative apices, 198-99 introduction, 192 significance, 192-95 whole plant perspective axial path, 213 future research, 215 terminal sinks, 213-15 Phosphate

jasmonates and, 369

alternative oxidase and,

Phosphoenolpyruvate

3-Phosphoglycerate

722-23

Phosphoglycolate C2 cycle and, 9-12 Phospholipase D programmed cell death and, Phosphorylation alternative oxidase and, 704, 706, 719, 723 aquaporins and, 410 fatty acid synthesis regulation and, 122 fluorescent microscopy of living plant cells and, 179, 184 jasmonates and, 360 oxidative burst in disease resistance and, 258 programmed cell death and, 537 Photons cyanobacterial circadian rhythms and, 336 fluorescent microscopy of living plant cells and, 176-77, Photoreceptors cyanobacterial circadian rhythms and, 342, 345-46 Photorespiration alternative oxidase and, 726 C2 cycle and, 1, 17-19 and CO2 and more efficient plants, 616 Photosynthesis alternative oxidase and, 722, 726 C2 cycle and, 1-25 and CO2 and more efficient plants, 609, 611-12, 614-27 cyanobacterial circadian rhythms and, 327, 330-33, 336, 347-48 fatty acid synthesis regulation and, 120 in vitro transcription systems and, 393 jasmonates and, 355, 367, 369-71 photosystem II and, 641 plant transformation and, 301 Photosystem II and CO2 and more efficient plants, 614 structure and membrane organization of 23-kDA extrinsic subunits, 662 33-kDA extrinsic subunits, 659, 662 CP43 complex, 659-61 D1-D2-cyt b559 complex, 659-61 electron crystallography, 655-59

starch granule synthesis and,

electron microscopy, 652-59 genes, 644-45 heterogeneity of PSII in vivo, 649-52 introduction, 642-43 Lhcb proteins, 664-65 localization of PSII and LHCII, 649 membrane-embedded PSII core components, 662-64 proteins, 644-45 single particle averaging, 652-55 subunit organization, 659-65 subunit structure and function, 643-47 thylakoid membrane, 648-52 Phragmipedium sp. pollination regulation and, 552 PHYLIP package gibberellin biosynthesis and, 438 Phylogenetic trees gibberellin biosynthesis and, Physcomytrella patens chemical control of gene induction and, 102 Phytoalexins programmed cell death and. 530-31 Phytochrome fluorescent microscopy of living plant cells and, 184-85 Phytoglycogen starch granule synthesis and, Phytohormones auxin biosynthesis and, 51 Phytophthora cryptogea oxidative burst in disease resistance and, 261 Phytophthora infestans chemical control of gene induction and, 94 disease resistance genes and, 587 jasmonates and, 372 oxidative burst in disease resistance and, 254, 256 Phytophthora megasperma chemical control of gene induction and, 93 programmed cell death and, 535 Phytophthora parasitica jasmonates and, 362 Phytophthora sojae disease resistance genes and, 602 Phytophthora sp. disease resistance genes and,

Phytotron and CO2 and more efficient plants, 614 Picea abies gibberellin biosynthesis and, 441 Pichia stipitis alternative oxidase and, 707 pid mutants angiosperm shoot apical meristem development and, 689-89 Pigmentation jasmonates and, 367 phloem unloading and, 202 pollination regulation and, 551-52 Pigment protein complex photosystem II and, 641 pin mutants angiosperm shoot apical meristem development and, 688-89 jasmonates and, 365-67, 373-75 Pinus radiata pollination regulation and, 559 Pinus taeda and CO2 and more efficient plants, 620 pollen germination and, 480 PIP proteins aquaporins and, 409, 413-14, 416, 420-21 Pisum sativum aquaporins and, 406 and CO2 and more efficient plants, 618 gibberellin biosynthesis and, 435, 442, 447 See Protein kinase C Plantago major phloem unloading and, 210, Plant efficiency rising atmospheric CO2 and acclimation and canopy photosynthesis, 621-22 acclimation of respiration, 626-27 dark respiration, 624-27 energy budget, 614 evapotranspiration, 613-14 introduction, 610-11 light use efficiency, 628-29 mitochondrial respiration, 623-24

molecular mechanism of ac-

climation, 620-21

nitrogen limitation, 618

nitrogen use efficiency, 627-28

photosynthesis, 611-12, 614-27 533 Rubisco, 616, 618-20 shade, 622-24 source/sink balance, 617-18 stomata, 611-14 temperature, 616-17 water use efficiency, 627 Plant transformation biological requirements, 302 constraints, 304-5 intellectual property, 316-17 public perception, 314-16 regulatory environment, 314-16 definition, 299-300 future research breeding, 320 collateral genetic damage. 319 commerciality, 320 genetic diversity, 320 ideal and model transformation system, 319-20 practicality, 320 transformation efficiency, 317-18 useful vs absolute transformation efficiency, 318-19 introduction, 298-99 practical requirements, 302-5 purposes experimental tool for plant **Plastids** physiology, 301 practical tool for plant improvement, 301-2 recalcitrant systems, 304-6 439 strategies gene transfer strategies, 308-10 integrating component of transformation strategies, 312-14 selection strategies, 310 tissue culture strategies, 305 - 7transgene expression strategies, 311-12 verification, 299-300 Plasma membrane aquaporins and, 399, 409 fluorescent microscopy of living plant cells and, 180 phloem unloading and, 191, 195, 207 Plasmids cyanobacterial circadian rhythms and, 337-38, 343 plant transformation and, 309 Plasmodesmata fluorescent microscopy of living plant cells and, 166-67 phloem unloading and, 191,

195, 198-200, 202, 203-5,

207 - 8

programmed cell death and, protein and nucleic acid transport through cellular domains specificed by leaf plasmodesmata, 42-45 cellular proteins, 38-39 future perspectives, 45-46 introduction, 28 mechanism of plasmodesmal transport, 41-42 movement protein-cytoskeleton interaction, 34-35 movement protein-nucleic acid complexes, 32-34 nuclear import, 39-41 nuclear localization signal. 39-40 permeability, 35-36 phloem proteins, 36-38 plasmodesmal structure. 28-31 receptors, 40-41 specifics, 30-39 transport mechanisms, 39-42 viral cell-to-cell movement proteins, 30, 32-36 Plasmodiophora brassicae auxin biosynthesis and, 61 Plasmometric method aguaporins and, 403 fatty acid synthesis regulation and, 109, 111-15, 118, 120-22, 128, 131 gibberellin biosynthesis and, jasmonates and, 365 plant transformation and, 311 starch granule synthesis and, 69-70 and transport of proteins and nucleic acids through plasmodesmata, 37 Plastiquinone alternative oxidase and, 719 Plastochron angiosperm shoot apical meristem development and, 675-76 Platanthera sp. pollination regulation and, 552 Plectonema boryanum cyanobacterial circadian rhythms and, 331 Pleiotropy angiosperm shoot apical meristem development and, 680 chemical control of gene induction and, 90, 94 fatty acid synthesis regulation and, 127 oxidative burst in disease resistance and, 262

Pmg elicitor programmed cell death and, 535 pnh mutants angiosperm shoot apical meristem development and, 684, 689 Pods starch granule synthesis and, poky gene alternative oxidase and, 707-8 Pollen germination tube growth and actin-binding proteins, 470-71 actin microfilaments, 469-70 arabinogalactan proteins, 475-7 calcium ions, 472-73 dehydration, 463-65 extracellular matrix components, 474 flavonoids, 467-68 gene expression during pollen germination and tube growth, 480-82 gene expression during progamic phase, 478-84 genes in pollem metabolism, 483-84 hydration, 463-65 imbibition, 464-65 introduction, 462 in vitro germination, 462-63 kinase sequences in pollen tubes, 482 late genes, 482 microtubules, 471-72 myosin, 470-71 oleosins, 466-67 oscillatory growth, 477-78 pectin, 474 phase transition, 463-64 pollen coat compounds, 465 pollen components involved in germination, 465-68 pollen tube structure, 468-78 pollen wall, 474 profilin, 471 pulsatory growth, 477-78 stylar tissues, 475-77 translational control, 478-79

translational mechanisms in

dehydrated pollen, 479-81

water loss, 463-64

aquaporins and, 422

fatty acid synthesis regula-

jasmonates and, 355, 367, 372

waxes, 465-66

tion and, 129

Pollen grains

Pollen tubes

programmed cell death and,

fluorescent microscopy of living plant cells and, 168-69, Pollination regulation of flower development ACC oxidase, 564-65 ACC synthase, 562-63 ethylene biosynthesis, 561-65 female embryo development, 555 female gametophyte devel-opment, 552-55 floral pigmentation changes, 551-52 future research, 567-68 interorgan coordination model, 565-67 introduction, 548-49 ovary development, 555-56 perianth senescence, 549-51 primary pollination signals, 557-59 secondary pollination sig-nals, 559-61 signals, 556-61 syndrome of developmental events, 549-56 Polyadenylation signals plant transformation and, 311 Polyethylene glycol (PEG) plant transformation and, 304 Polyhydroxybutyrate fatty acid synthesis regulation and, 122 Polymerase chain reaction (PCR) alternative oxidase and. 712 - 13plant transformation and, 300, 310, 320 symbiotic membranes from legume nodules and, 516 Polymers starch granule synthesis and, 67 Polyploidy plant transformation and, 299 Polysaccharides oxidative burst in disease resistance and, 261 Polyubiquitin oxidative burst in disease resistance and, 261 Pores aquaporins and, 405, 414 and transport of proteins and nucleic acids through plasmodesmata, 27-28, 37,

39-40

694-96

191-215

angiosperm shoot apical

Post-sieve element transport

phloem unloading and,

meristem development and,

Positioning

Posttranscriptional effects alternative oxidase and, 703, cyanobacterial circadian rhythms and, 346 Posttranslational modifications aquaporins and, 399, 417-18 Potamogeton pectinatus and oxygen deficiency and root metabolism, 230 Potassium chloride oxidative burst in disease resistance and, 257-58 Potassium cyanide alternative oxidase and, 708, and CO2 and more efficient plants, 624 Potato alternative oxidase and, 711, 713-14 auxin biosynthesis and, 61 chemical control of gene induction and, 94, 96, 99 oxidative burst in disease resistance and, 255, 260 phloem unloading and, 200, 207 plant transformation and, 315 programmed cell death and, 540 starch granule synthesis and, 68, 76-78, 82 Potato virus X fluorescent microscopy of living plant cells and, 183 and transport of proteins and nucleic acids through plasmodesmata, 36 Powdery mildew disease resistance genes and, 602 oxidative burst in disease resistance and, 263 programmed cell death and, 532, 538 PPO gene jasmonates and, 367 Practicality plant transformation and, 320 and CO2 and more efficient plants, 613 Preformed protective defenses

programmed cell death and,

Pressure probe measurements

aquaporins and, 399, 401-3,

disease resistance genes and,

chemical control of gene in-

duction and, 91-93, 95

525-26

Prf ndl gene

583-84 PR genes

798

Primordia angiosperm shoot apical meristem development and, 675, 677–78, 683, 694–96 phloem unloading and, 198

Profilin pollen germination and, 471 Progamic phase

pollen germination and, 478–84 Progesterone

chemical control of gene induction and, 104 Programmed cell death

oxidative burst in disease resistance and, 263 and oxygen deficiency and root metabolism, 223,

241–43 plant-pathogen interactions and cell death mechanisms dur-

ing susceptible interactions, 527–29 hypersensitive response,

531–38 induction of defenses, 540–41

introduction, 526 resistant response, 529–38 role of cell death, 526–27 systemic acquired resistance, 538–40

pollination regulation and, 567
Prokaryotes

alternative oxidase and, 706 chemical control of gene induction and, 89, 97 cyanobacterial circadian

rhythms and, 330, 332–33, 348 ethylene response pathway in

Arabidopsis and, 277 fatty acid synthesis regulation and, 111–12, 115 Proline

aquaporins and, 408 oxidative burst in disease resistance and, 260–61

symbiotic membranes from legume nodules and, 498, 505-6

Promoter genes alternative oxidase and, 703 aquaporins and, 416 chemical control of gene induction and, 90-103 cyanobacterial circadian

rhythms and, 336, 338–40 ethylene response pathway in *Arabidopsis* and, 288

fatty acid synthesis regulation and, 126, 128–29 fluorescent microscopy of living plant cells and, 182

in vitro transcription systems and, 389, 391, 393, 395 jasmonates and, 355, 366 plant transformation and.

311–12, 314, 316 starch granule synthesis and, 69

n-Propyl gallate alternative oxidase and, 704,

716–17 Proteases programmed cell death and,

537 proteinase inhibitor II gene chemical control of gene in-

chemical control of gene induction and, 96 Protein biosensors

fluorescent microscopy of living plant cells and, 165, 178–79 Protein bodies

angiosperm shoot apical meristem development and, 679

Protein kinase Č (PKC) ethylene response pathway in Arabidopsis and, 292

Proteins and CO₂ and more efficient plants, 626–27 and oxygen deficiency and root metabolism, 236–39 photosystem II and, 644–45 symbiotic membranes from

legume nodules and, 508 Protein-serine kinase inhibitor oxidative burst in disease resistance and, 258, 263

Proteolysis programmed cell death and, 537

Protists alternative oxidase and, 703, 706, 711

Proton pump programmed cell death and, 536 symbiotic membranes from

legume nodules and, 507 Protons alternative oxidase and, 703

aquaporins and, 402, 415
Protoplasts

aquaporins and, 403 chemical control of gene induction and, 94 fluorescent microscopy of living plant cells and, 171, 175-76

in vitro transcription systems and, 388, 392–93 oxidative burst in disease resistance and, 260 plant transformation and, 304

programmed cell death and, 534

prp1-1:barnase gene chemical control of gene induction and, 94

Prunus dulcis
pollination regulation and, 554
psbAl gene

cyanobacterial circadian rhythms and, 334, 336, 338, 342–46

Pseudomonas fluorescens oxidative burst in disease resistance and, 254

Pseudomonas sp. programmed cell death and, 527, 531, 535 Pseudomonas syringae

disease resistance genes and, 579–80, 583–84, 589 oxidative burst in disease resistance and, 254, 257–60, 262–64, 267–68 programmed cell death and

programmed cell death and, 527, 530, 538, 540 psl gene

oxidative burst in disease resistance and, 261 Pto gene

disease resistance genes and, 583–84 oxidative burst in disease resistance and, 258

Public perception plant transformation and, 297, 314–16

Puccinia coronata oxidative burst in disease resistance and, 261

Puccinia sorghi disease resistance genes and, 598, 600

Pueraria lobata oxidative burst in disease resistance and, 266

Pullulan starch granule synthesis and, 80

Pulsatory growth pollen germination and, 477-78

Pumpkin gibberellin biosynthesis and, 437, 441–43, 445 oxidative burst in disease resistance and, 262 PurF gene cyanobacterial circadian rhythms and, 338–40, 343 Pyramiding plant transformation and, 310

Pyricularia grisea alternative oxidase and, 720 Pyridines

alternative oxidase and,

Pyrimidines

programmed cell death and, 528-29

Pyrophosphorylase ADPglucose starch granule synthesis and, 67 Pyruvate

alternative oxidase and, 703, 715–18, 722–27 Pyruvate dehydrogenase fatty acid synthesis regula-

fatty acid synthesis regulation and, 114 Pythium sp. disease resistance genes and, 576

0

Q-electrode technique alternative oxidase and, 714–17 Quadratic check disease resistance genes and, 577

Quantum efficiency C2 cycle and, 15-16

R

Raf family ethylene response pathway in Arabidopsis and, 277, 282, 286–88, 292

Raphanus sativus gibberellin biosynthesis and,

Rapid defense response programmed cell death and, 529

Ras protein ethylene response pathway in Arabidopsis and, 287 Rate-limiting step

starch granule synthesis and,

Ratio analysis fluorescent microscopy of living plant cells and, 165, 167-69

rbc genes in vitro transcription systems and, 393 jasmonates and, 366–67 rb gene starch granule synthesis and, 83

rbohA gene oxidative burst in disease resistance and, 257

RCNMV See Red clover necrotic mosaic dianthovirus

RD29A drought-inducible promoter

fluorescent microscopy of living plant cells and, 182 rDNA

See Ribosomal DNA

Recalcitrant species plant transformation and, 297, 304–6, 308, 317

Receptors angiosperm shoot apical meristem development and, 693

chemical control of gene induction and, 100–1, 104 cyanobacterial circadian rhythms and, 342, 345–46 disease resistance genes and,

575, 590–92, 597 ethylene response pathway in Arabidopsis and, 277, 279 fluorescent microscopy of living plant cells and, 182, 184 jasmonates and, 365

oxidative burst in disease resistance and, 259 programmed cell death and,

538–39 and transport of proteins and nucleic acids through plasmodesmata, 31, 40–41

Red blood cell paradigm aquaporins and, 404–5 Red clover necrotic mosaic di-

and transport of proteins and nucleic acids through plasmodesmata, 33–34, 36

Red fluorescent proteins fluorescent microscopy of living plant cells and, 182–83 Red light

cyanobacterial circadian rhythms and, 345 fluorescent microscopy of living plant cells and, 184

alternative oxidase and, 703, 707, 719, 721–24 oxidative burst in disease resistance and, 262, 264 and oxygen deficiency and

Redox

root metabolism, 226 Reduced branching mutants trichome development in Arabidopsis and, 146, 148–49 Reductases disease resistance genes and, 577

Regeneration plant transformation and, 306, 313, 318 Regulatory genes

cyanobacterial circadian rhythms and, 345 plant transformation and, 297, 314–16

Rehydration pollen germination and, 461

Relaxation aquaporins and, 404

Reporter genes chemical control of gene induction and, 96

and CO₂ and more efficient plants, 620

cyanobacterial circadian rhythms and, 334–38, 342–44, 348 fluorescent microscopy of

fluorescent microscopy of living plant cells and, 182 plant transformation and,

308, 312, 320 Reproductive storage sinks terminal, 201–2

Resistance mechanisms programmed cell death and, 525, 529-38

Resource use and CO₂ and more efficient plants, 609

Respiration and CO₂ and more efficient plants, 609–10, 623–27

Respiratory pathway mitochondrial alternative oxidase and, 703-28

Responsive genes jasmonates and, 367–75 Restriction enzymes plant transformation and, 300

Retinoids chemical control of gene induction and, 104

"Reverse fountain" cytoplasmic streaming pollen germination and, 468

Reverse phenotype chemical control of gene induction and, 102

Reverse transcription-PCR alternative oxidase and, 712 R genes

disease resistance genes and, 575–602 oxidative burst in disease resistance and, 252, 258, 263

programmed cell death and, 529-30, 532-34, 539-40

rhd6 mutant

ethylene response pathway in Arabidopsis and, 282

Rhizobium leguminosarum symbiotic membranes from legume nodules and. 497-98, 500, 505

Rhizobium meliloti

and oxygen deficiency and root metabolism, 239 symbiotic membranes from

legume nodules and, 500, 505

Rhizobium sp.

ethylene response pathway in Arabidopsis and, 291 pollen germination and, 467 symbiotic membranes from legume nodules and, 493, 495_97

Rhizobium trifolii symbiotic membranes from

legume nodules and, 507 Rhizoids

algal

fluorescent microscopy of living plant cells and, 169 Rhodamine

fluorescent microscopy of liv-ing plant cells and, 172, 174, 178

Rhodopsin

programmed cell death and. 537

Rhynchosporium secalis disease resistance genes and, 578

Rhythmic gene expression cyanobacterial circadian rhythms and, 337, 339-42

Ribosomal DNA (rDNA) in vitro transcription systems and, 394

Ribosomal RNA (rRNA) chemical control of gene induction and, 102

pollen germination and, 480 Ribosomes

and transport of proteins and nucleic acids through plasmodesmata, 37-38

Rice

angiosperm shoot apical meristem development and, 682 disease resistance genes and,

ethylene response pathway in Arabidopsis and, 288

gibberellin biosynthesis and, 440, 444, 446 in vitro transcription systems and, 384, 387, 391-93, 395

jasmonates and, 364 oxidative burst in disease resistance and, 257

plant transformation and,

starch granule synthesis and,

and transport of proteins and nucleic acids through plasmodesmata, 37

Ricinus communis fatty acid synthesis regulation and, 122

RICR1091A

oxidative burst in disease resistance and, 257 RIP60 protein

jasmonates and, 367, 372

Ripening

fruit ethylene response pathway in Arabidopsis and 277-78, 286 jasmonates and, 355, 367 programmed cell death and,

RNA-binding protein alternative oxidase and, 720

RNA polymerases cyanobacterial circadian rhythms and, 339, 344 in vitro transcription systems and, 383, 388-95

RNA processing jasmonates and, 355 plant transformation and, 311

RNAse protection assay in vitro transcription systems and, 386

RNA viruses

fluorescent microscopy of living plant cells and, 183 Robotic systems

plant transformation and, 318

RolB gene

chemical control of gene induction and, 98-99 Root hairs

ethylene response pathway in Arabidopsis and, 282 fluorescent microscopy of living plant cells and, 167,

168-70

Rootless mutants angiosperm shoot apical meristem development and, 684

Roots

alternative oxidase and, 722 and CO2 and more efficient plants, 617, 624

ethylene response pathway in Arabidopsis and, 278, 280 fatty acid synthesis regulation and, 129

fluorescent microscopy of living plant cells and, 176-77

gibberellin biosynthesis and, 457

jasmonates and, 355, 359, 364, 366

and oxygen deficiency and root metabolism, 223-43 phloem unloading and,

198-99, 204, 206, 208 starch granule synthesis and,

trichome development in Arabidopsis and, 138

oxidative burst in disease re-

sistance and, 257 Rosette coflorescences angiosperm shoot apical

meristem development and, 685-87 Rosette leaves

trichome dévelopment in Arabidopsis and, 141

RPMI gene disease resistance genes and, 580, 582

rpoD2 gene

cyanobacterial circadian rhythms and, 344-45

RPP5 gene

disease resistance genes and, 582-83 RPS2 gene

disease resistance genes and, 580, 582 rRNA

See Ribosomal RNA

Rs/ mutant angiosperm shoot apical meristem development and, 690, 695

chemical control of gene in-

duction and, 102-3 rty mutant auxin biosynthesis and,

57-58, 62 RU 486

chemical control of gene induction and, 104

Rubisco C2 cycle and, 1-21

and CO2 and more efficient plants, 614-23, 628 gibberellin biosynthesis and,

jasmonates and, 366 and transport of proteins and nucleic acids through plasmodesmata, 37

RUG5 gene starch granule synthesis and, 75-76

rugosus gene starch granule synthesis and, Run-off assay in vitro transcription systems and, 385, 395 Rusts

disease resistance genes and, 578, 598, 600 oxidative burst in disease resistance and, 261, 264

S

S1 mapping assays in vitro transcription systems and, 386

Saccharomyces cerevisiae alternative oxidase and, 720 and oxygen deficiency and root metabolism, 239

Saccharomyces sp. fatty acid synthesis regulation and, 130

Safeners chemical control of gene induction and, 89-90, 94-95

Salicylhydroxamic acid (SHAM) alternative oxidase and, 704,

708 and CO₂ and more efficient

and CO₂ and more efficien plants, 624 Salicylic acid

oxidative burst in disease resistance and, 251, 267–69 programmed cell death and, 530

Saprophytes disease resistance genes and, 601

Saturation mutagenesis cyanobacterial circadian rhythms and, 330

Saturation transfer aquaporins and, 402 SAUR-AC1 gene

ethylene response pathway in Arabidopsis and, 289 Sauromatum guttatum alternative oxidase and,

707-9, 711-13 SAUR promoter angiosperm shoot apical meristem development and,

690 Scanning electron microscopy (SEM)

trichome development in Arabidopsis and, 139-40

Scanning-substitution mutations in vitro transcription systems and, 384

Scenedesmus sp. C2 cycle and, 14 Scheonoplectus lacrustis and oxygen deficiency and root metabolism, 230 Schizosaccharomyces pombe chemical control of gene induction and, 100 Scirpus maritimus

and oxygen deficiency and root metabolism, 230 Scirpus olneyi

and CO₂ and more efficient plants, 618, 623, 626–28

Screening

cyanobacterial circadian rhythms and, 336–38, 342 population

plant transformation and, 297, 301, 313

Scutellum

angiosperm shoot apical meristem development and, 677 gibberellin biosynthesis and, 441

plant transformation and, 313 SDS-PAGE electrophoresis alternative oxidase and,

alternative oxidase and, 716–17 in vitro transcription systems

and, 385 se-cc complexes

phloem unloading and, 200, 209-10

Secondary response genes ethylene response pathway in Arabidopsis and, 288

Sedge and CO₂ and more efficient plants, 618, 626, 628

Seedlings and CO₂ and more efficient plants, 618, 623 phloem unloading and,

199–200 trichome development in Arabidopsis and, 139

Seeds fatty acid synthesis regulation and, 109–10, 116, 118,

121–27 terminal reproductive storage sinks and, 202

Selection plant transformation and, 297, 300, 305-6, 310

Selectivity aquaporins and, 414–15 Self-incompatibility

fluorescent microscopy of living plant cells and, 184

Self-regulation C2 cycle and, 1 Self-renewal

angiosperm shoot apical meristem development and, 691–93

SEM

See Scanning electron mi-

croscopy

Semidwarfism gibberellin biosynthesis and, 443, 447

Senescence

ethylene response pathway in Arabidopsis and, 277–78 jasmonates and, 369–71 pollination regulation and, 547, 549–51, 556, 558, 560,

programmed cell death and, 529, 540

Sensitivity

cyanobacterial circadian rhythms and, 327

Sepals

chemical control of gene induction and, 92 petaloid angiosperm shoot apical meristern development

meristem development and, 680

trichome development in Arabidopsis and, 138-39

Serine

symbiotic membranes from legume nodules and, 498, 515 Ser/Thr protein kinases ethylene response pathway in Arabidopsis and, 277, 286

Arabidopsis and, 277, 286 Sethoxidim fatty acid synthesis regulation and, 118

tion and, 118
Sexual reproduction
plant transformation and,
299, 301–3, 307, 313, 319
pollen germination and, 461

Shade and CO₂ and more efficient plants, 622-24

SHAM

See Salicylhydroxamic acid Shoot apical meristem develop-

developmental genetics adventitious shoot apical meristem formation, 689–91 on axis of plant, 685–89 formation during embryogenesis, 677–85 introduction, 674–75 leaf development, 694 molecular patterns within meristem, 695–96 patterning leaves, 695 positional information, 694–96

self-renewal, 691–93 structure, 675–77

hoots

and CO₂ and more efficient plants, 626 plant transformation and, 313 SHRUN-KEN2 starch granule synthesis and, 72

Shunt

electron alternative oxidase and, 724

SiB2-GMM

and CO2 and more efficient plants, 629

Sieve-element cells

and transport of proteins and nucleic acids through plasmodesmata, 37-38, 44

Sieve-element unloading phloem unloading and. 191-215

Sigma factors

cyanobacterial circadian rhythms and, 340, 344

Signal amplification pollination regulation and, 547, 556-61

Signal masking

and transport of proteins and nucleic acids through plasmodesmata, 40

Signal transduction alternative oxidase and, 712 and CO2 and more efficient

plants, 620-21 disease resistance genes and,

575, 581, 589-94 ethylene response pathway in Arabidopsis and, 277-78,

286, 288-92 fluorescent microscopy of living plant cells and, 167

jasmonates and, 359, 365-66

oxidative burst in disease resistance and, 251, 258-59, 264-65 and oxygen deficiency and

root metabolism, 242 programmed cell death and, 531, 533, 535

and transport of proteins and nucleic acids through plasmodesmata, 45

Silencing

plant transformation and, 300, 303, 312

Silene armeria gibberellin biosynthesis and, 449

Siliques floral

gibberellin biosynthesis and, 443

'Simple" resistance loci disease resistance genes and,

Single particle image averaging photosystem II and, 652-55

Single-stranded DNA (ssDNA) plant tranformation and, 309 and transport of proteins and nucleic acids through plasmodesmata, 34

Single-stranded RNA (ssDNA) and transport of proteins and nucleic acids through plasmodesmata, 33

Sinks

and CO2 and more efficient plants, 621

fatty acid synthesis regulation and, 124-26 phloem unloading and,

191-95, 198-203, 205, 208-9, 213-15

symbiotic membranes from legume nodules and, 502 Sinorhizobium sp.

symbiotic membranes from legume nodules and, 495

symbiotic membranes from legume nodules and, 506

Skunk cabbage alternative oxidase and, 707

"Slave" enzymes fatty acid synthesis regulation and, 131

SLN1 gene

ethylene response pathway in Arabidopsis and, 291 Snapdragon

angiosperm shoot apical meristem development and, 687, 695-96

Social issues plant transformation and, 320

Socket cells

trichome development in Arabidopsis and, 141 Soft rot

programmed cell death and,

Soil-water balance and CO2 and more efficient

plants, 609 Somaclonal variation plant transformation and, 307

Sophronitis sp. pollination regulation and, 552

Sorghum sp. chemical control of gene induction and, 94 gibberellin biosynthesis and,

450 sos1 mutant

angiosperm shoot apical meristem development and, 688

Source/sink ratio and CO2 and more efficient plants, 617-18

phloem unloading and, 199-200, 203

Southern blot analysis jasmonates and, 365 plant transformation and, 300

Soybean

alternative oxidase and, 709, 711, 715-16, 721-22 chemical control of gene induction and, 94-95

and CO2 and more efficient plants, 626 disease resistance and, 579

disease resistance genes and. fatty acid synthesis regula-

tion and, 127 in vitro transcription systems and, 387, 391, 394

jasmonates and, 359, 368-71, 374-75

oxidative burst in disease resistance and, 254-55, 257, 259-65, 268

and oxygen deficiency and root metabolism, 225 phloem unloading and, 200 plant transformation and, 307, 315

pollen germination and, 481 programmed cell death and, 534_37

symbiotic membranes from legume nodules and, 495. 497, 506, 513

Soybean trypsin inhibitor and transport of proteins and nucleic acids through plasmodesmata, 38

Spartina alterniflora and oxygen deficiency and root metabolism, 241

Spartina patens and CO2 and more efficient plants, 626

Specificity

disease resistance genes and,

plant transformation and, 307 pollen germination and, 461

Spikes trichome development in Arabidopsis and, 138

C2 cycle and, 14 fatty acid synthesis regulation and, 117, 119, 121 gibberellin biosynthesis and, 441, 444, 450

Spinacia oleracea gibberellin biosynthesis and, 435, 450

see Squash leaf curl virus

Squash plant transformation and, 315 Squash leaf curl virus (SqLVC)

and transport of proteins and nucleic acids through plasmodesmata, 34

and transport of proteins and nucleic acids through plasmodesmata, 30 ssDNA

See Single-stranded DNA SSK genes

ethylene response pathway in Arabidopsis and, 291

Stable isotope labeling in vivo auxin biosynthesis and, 52 STA genes starch granule synthesis and.

71, 79 Stalks trichome development in

trichome development in Arabidopsis and, 141 Stamen

fluorescent microscopy of living plant cells and, 178 trichome development in Arabidopsis and, 138

Starch and CO₂ and more efficient plants, 620

jasmonates and, 368, 370 Starch granule synthesis

ADPglucose generation, 68–72 amylopectin molecule synthesis and organization, 72–74 debranching enzymes, 79–80 starch-branching enzymes, 67–68, 77–79 starch synthases, 67–68, 75–77

amylose synthesis, 80–83 introduction, 67–68 Staurosporine jasmonates and, 360

programmed cell death and, 534–35 Stearoyl-ACP desaturase

Stearoyl-ACP desaturase fatty acid synthesis regulation and, 114 Stellaria media

angiosperm shoot apical meristem development and, 685 Stem canker disease

programmed cell death and, 528

Stem cells angiosperm shoot apical meristem development and, 673 Stem elongation zones

phloem unloading and, 199 Stemphylium loti alternative oxidase and, 707 Stems and CO₂ and more efficient

plants, 624 jasmonates and, 364 phloem unloading and, 206,

trichome development in Arabidopsis and, 138-39

Steroids chemical control of gene induction and, 89, 100-1, 103 Stigmas

pollen germination and, 465 STM gene

angiosperm shoot apical meristem development and, 677– 78, 681–85, 689, 691–94 Stomata

and CO₂ and more efficient plants, 609, 611–14, 629 fluorescent microscopy of living plant cells and, 185

Stopped-flow spectrophotometry aquaporins and, 399, 406

Storage proteins jasmonates and, 368–69 Stratification

gibberellin biosynthesis and, 451

Streptomyces olivoreticuli chemical control of gene induction and, 96

Stress genes ethylene response pathway in Arabidopsis and, 280

Stress stimuli alternative oxidase and, 703, 726

Stylar tissues pollen germination and, 475–77 Su-1 gene

starch granule synthesis and, 79–80 Subcellular level fluorescent microscopy of liv-

ing plant cells and, 165
"Submarine" patent applications

plant transformation and, 317 Subtropics and CO₂ and more efficient

plants, 623 Succinate dehydrogenase alternative oxidase and, 704–5 and CO₂ and more efficient plants, 623–26

Sucrose and CO₂ and more efficient plants, 620 jasmonates and, 368

phloem unloading and, 191, 194, 198–202, 204–5, 208 pollen germination and, 464 starch granule synthesis and, 69, 83 Sugarcane

phloem unloading and, 200, 205, 208 plant transformation and,

307, 312 Sugar/proton symport mechanism

phloem unloading and, 191 Sugars

jasmonates and, 369, 375 phloem unloading and, 191, 198–99, 202

programmed cell death and, 541 symbiotic membranes from

legume nodules and, 500

Sugary gene
starch granule synthesis and,

79-80 Suicide process programmed cell death and,

537 Sunflower aquaporins and, 420 phloem unloading and, 199

Supercoiling DNA cyanobacterial circadian rhythms and, 339

Superoxide oxidative burst in disease resistance and, 251 programmed cell death and, 531, 535–36

Superoxide dismutase oxidative burst in disease resistance and, 254, 257

sur1 gene auxin biosynthesis and, 57 Susceptible interactions programmed cell death and, 526–29

Suspension-cell cultures in vitro transcription systems and, 383, 387

SV40 large T antigen and transport of proteins and nucleic acids through plasmodesmata, 39

Sweet pea gibberellin biosynthesis and, 448

Sweet potato starch granule synthesis and, 77

Symbiosis membranes from legume nodules and, 493–516 Symbiosome

symbiotic membranes from legume nodules and, 493-95, 501-2, 506-8, 513

Symplasm phloem unloading and, 191, 196–209 Symplocarpus foetidus alternative oxidase and, 707 Synechococcus sp.

cyanobacterial circadian rhythms and, 331-35, 337, 339-46

photosystem II and, 653 Synechocystis sp.

cyanobacterial circadian rhythms and, 346 Synergid degeneration

pollination regulation and, 554-55

Syringolides

disease resistance genes and, 579

programmed cell death and, 529

Systemic acquired resistance chemical control of gene induction and, 90-93 oxidative burst in disease resistance and, 252

programmed cell death and, 531, 538-41

Systemin

jasmonates and, 355, 360, 365

Tagging plant transformation and, 314 Tan-ginzobu mutant

gibberellin biosynthesis and, 440

Tannins jasmonates and, 375

Taraxacum sp. aquaporins and, 416

Targeted integration systems plant transformation and. 312

Target species plant transformation and, 303, 319

tasselless mutant angiosperm shoot apical meristem development and,

689 TATA box

chemical control of gene induction and, 97, 100, 103 in vitro transcription systems and, 389-90, 393

Tau protein fluorescent microscopy of living plant cells and, 182

TC7 promoter in vitro transcription systems

and, 389, 391 tc effector chemical control of gene in-

duction and, 103-4 TCH genes jasmonates and, 359 IDNA See Transfer DNA

Temperature aquaporins and, 401, 405 C2 cycle and, 20 and CO2 and more efficient

plants, 614, 616-17, 619 cyanobacterial circadian rhythms and, 327, 333, 347 gibberellin biosynthesis and,

431, 451-52 Tendril coiling ethylene response pathway in Arabidopsis and, 289

jasmonates and, 355, 359, 363, 368 Terminal oxidase

alternative, 703-28 Terminal sinks

phloem unloading and, 193-94, 200-3, 213-15

Termination in vitro transcription systems and, 383-86, 395 plant transformation and, 311

Terpene cyclases gibberellin biosynthesis and,

431-32 Tetracycline

chemical control of gene induction and, 89, 97-99, 101 - 3

Tet repressor/operator system chemical control of gene induction and, 97-99, 101-3

Thermodynamics aquaporins and, 401 fatty acid synthesis regulation and, 116 Thioesterases

fatty acid synthesis regulation and, 114-15, 124-26

jasmonates and, 367, 372 Thlaspi arvense gibberellin biosynthesis and, 451-52

Three-dimensional fluorescence microscopy living plant cells and, 172-77

Threshold trigger oxidative burst in disease resistance and, 251

Thylakoid membrane fatty acid synthesis regulation and, 112 photosystem II and, 641-42, 648-52

Timekeeping mechanism cyanobacterial circadian rhythms and, 327 timeless gene

cyanobacterial circadian rhythms and, 329, 343, 349 Tip growth

pollen germination and, 461 TIP proteins

aquaporins and, 407, 409-11, 413-18, 421

TIR domain

disease resistance genes and, 590-91

Tissue culture

plant transformation and, 297, 305-8, 312-13, 318-19 TMV

See Tobacco mosaic virus To-2 mutant

angiosperm shoot apical meristem development and, 688 Tohacco

alternative oxidase and, 709, 711, 713-14, 716, 720 angiosperm shoot apical

meristem development and, 691, 696 aquaporins and, 406, 413

auxin biosynthesis and, 59 C2 cycle and, 14 chemical control of gene induction and, 91, 95-96, 98-102

and CO2 and more efficient plants, 618, 620 disease resistance genes and,

582-83 ethylene response pathway in Arabidopsis and, 288 fatty acid synthesis regula-

tion and, 119-20, 127 fluorescent microscopy of living plant cells and, 180, 181-82

in vitro transcription systems and, 384, 387, 391-95 oxidative burst in disease resistance and, 254, 259, 261, 263-64, 267-68

plant transformation and, 315

pollen germination and, 472, 476-77, 479, 481, 483 programmed cell death and, 533, 536-40

and transport of proteins and nucleic acids through plasmodesmata, 28, 38, 42

Tobacco mosaic virus (TMV) oxidative burst in disease re-

sistance and, 267 programmed cell death and. 530, 536, 540

and transport of proteins and nucleic acids through plasmodesmata, 32-36, 41, 43, 45

Tobacco rattle virus (TRV) and transport of proteins and nucleic acids through plasmodesmata, 36

tocl gene cyanobacterial circadian rhythms and, 349 Tolbert, NE, 1-25 Tolerant mutants programmed cell death and,

Toll receptor protein disease resistance genes and, 590-92

Tomato

angiosperm shoot apical meristem development and, 687, 690, 692–93 auxin biosynthesis and, 58 chemical control of gene induction and, 96, 99

disease resistance genes and, 583-87, 601

ethylene response pathway in Arabidopsis and, 286, 288 fluorescent microscopy of living plant cells and, 185 gibberellin biosynthesis and, 439

in vitro transcription systems and, 393

jasmonates and, 365, 372 oxidative burst in disease resistance and, 257–58, 264, 267 phloem unloading and, 201 plant transformation and, 315 pollen germination and, 468, 481, 484

pollination regulation and, 560 programmed cell death and, 527–28, 530, 533

Tonoplast fluorescent microscopy of living plant cells and, 180

Totipotency plant transformation and, 302 TOX gene

disease resistance genes and, 577

tpl mutants

angiosperm shoot apical meristem development and, 680-82

Tracer flow aquaporins and, 406 Tradescantia sp. aquaporins and, 418 fluorescent microscopy of living plant cells and, 178 pollen germination and, 479-80

Trailer sequences plant transformation and, 311

trans-acting factors cyanobacterial circadian rhythms and, 340, 344 fatty acid synthesis regulation and, 130 in vitro transcription systems and, 384, 391 jasmonates and, 356

Transactivation chemical control of gene induction and, 101

Transcellular water transport aquaporins and, 419–20 alternative oxidase and, 706

Transcriptional-dependent defenses

oxidative burst in disease resistance and, 260-62

Transcriptional regulation alternative oxidase and, 706 aquaporins and, 399 chemical control of gene induction and, 91, 103 cyanobacterial circadian rhythms and, 339, 344, 346 in vitro transcription systems and, 383–96

jasmonates and, 355, 366 Transcription complex assay in vitro transcription systems and, 385

Transcription factors chemical control of gene induction and, 97, 101 ethylene response pathway in Arabidopsis and, 287 fatty acid synthesis regulation and, 130–31 fluorescent microscopy of living plant cells and, 167

oxidative burst in disease resistance and, 262 and transport of proteins and nucleic acids through plasmodesmata, 38, 40, 43

trichome development in Arabidopsis and, 137

trans-cyclooctene
ethylene response pathway in
Arabidopsis and, 281, 285
Transfer cells

phloem unloading and, 198 Transfer DNA (IDNA) auxin biosynthesis and, 57 ethylene response pathway in Arabidopsis and, 286 plant transformation and, 305, 314, 318

Just 314, 318

Transfer RNA (tRNA)
aquaporins and, 423
in vitro transcription systems
and, 394–95

Transformation cyanobacterial circadian rhythms and, 337 plant, 297–320 Transgenes

alternative oxidase and, 713–14, 726 aquaporins and, 423 auxin biosynthesis and, 53 chemical control of gene induction and, 92, 94–95, 98, 101–4 and CO₂ and more efficient

and CO₂ and more efficient plants, 620 fatty acid synthesis regula-

tion and, 119, 126–28, 130 fluorescent microscopy of living plant cells and, 180 gibberellin biosynthesis and,

in vitro transcription systems and, 384

oxidative burst in disease resistance and, 267 phloem unloading and, 207 plant transformation and, 297, 300, 303, 305, 307, 311–12, 314–20 pollen germination and, 476

pollen germination and, 476 pollination regulation and, 568 programmed cell death and, 536, 539

starch granule synthesis and, 78

Transgenic reporter technology fluorescent microscopy of living plant cells and, 179–83 Translation

jasmonates and, 355, 366 pollen germination and, 478–81 Translocation

alternative oxidase and, 703 phloem unloading and, 193 Transmembrane channel pro-

teins aquaporins and, 399–423 Transpiration

and CO₂ and more efficient plants, 609–10, 612–14, 620, 629

Transport mechanisms phloem unloading and, 191, 203-9

for proteins and nucleic acids through plasmodesmata, 27-46

Transposon-derived vectors plant transformation and, 309

Transposons chemical control of gene induction and, 97

cyanobacterial circadian rhythms and, 339 starch granule synthesis and, 71

Triacylglycerol fatty acid synthesis regulation and, 109-10, 122-23, 125

Tricarboxylic acid alternative oxidase and, 704-6, 708, 721-23, 725 symbiotic membranes from legume nodules and, 497–98 Trichome development in Arabidopsis early development, 143–47 expansion, 149–50

early development, 143–47 expansion, 149–50 future research, 159–60 genetic interactions, 151 GL1, 151–53, 155–56 GL2, 156–57 introduction, 138 maturation mutants, 149, 151 molecular studies, 151–58 mutants, 142–49 overview, 138–42

reduced branching mutants, 146, 148–49 TTG, 153–56 ZWL 157–58

and transport of proteins and nucleic acids through plasmodesmata, 36, 43–44 Triose phosphate shuttle

C2 cycle and, 23 Triple response morphology ethylene response pathway in Arabidopsis and, 280

Triticum aestivum and CO2 and more efficient plants, 613, 618

Triticum sativum fatty acid synthesis regulation and 122

tion and, 122 Tropic response fluorescent microscopy of liv-

ing plant cells and, 169 Tropics and CO₂ and more efficient

plants, 623

auxin biosynthesis and, 55-57 Truncations

cyanobacterial circadian rhythms and, 343 plant transformation and, 312

TRV
See Tobacco rattle virus
Trypanosoma brucei brucei

Trypanosoma brucei brucei alternative oxidase and, 706, 711 Tryptophan

auxin biosynthesis and, 51–56, 58, 61 symbiotic membranes from legume nodules and, 498

tTa activator chemical control of gene induction and, 103-4

TTG gene trichome development in Arabidopsis and, 153–56 TTS protein

pollen germination and, 476 tual gene

pollen germination and, 481 Tube growth pollen germination and, 461–84

Tubulin
fluorescent microscopy of living plant cells and, 172,

174, 178, 182 tufA gene

cyanobacterial circadian rhythms and, 341

Tulipa gesneriana gibberellin biosynthesis and, 452

Turgor aquaporins and, 399, 403–4 jasmonates and, 359 phloem unloading and, 193, 204–6, 208

pollen germination and, 470 Two-photon microscopy fluorescent microscopy of living plant cells and, 176–77

Typha angustifolia and oxygen deficiency and root metabolism, 230

Tyrosine
oxidative burst in disease resistance and, 260–61
symbiotic membranes from
legume nodules and, 498
Tyrosine aminotransferases

auxin biosynthesis and, 57

U

Ubiquinone pool alternative oxidase and. 703-5, 714, 720-24

alternative oxidase and, 703–5, 714, 720–24 Ubiquitin oxidative burst in disease re-

sistance and, 261, 265 programmed cell death and, 541 and transport of proteins and

nucleic acids through plasmodesmata, 37 ufo mutants

angiosperm shoot apical meristem development and, 683, 688

Ultraviolet (UV) light fluorescent microscopy of living plant cells and, 183 oxidative burst in disease re-

sistance and, 262 Unloading phloem, 191–215

Upstream respiratory carbon metabolism alternative oxidase and, 703,

720, 723–25 Uromyces vignae programmed cell death and, UV light See Ultraviolet light

V

Vacuoles aquaporins and, 399, 409, 421–22 fluorescent microscopy of living plant cells and, 176 in vitro transcription systems and, 387–88 phloem unloading and, 203–4, 209 Valine

Valine auxin biosynthesis and, 61 Valonia sp. aquaporins and, 405

Valonia ventricosa aquaporins and, 406 Vanda sp.

pollination regulation and, 550-51 Vascular parenchyma

phloem unloading and, 191, 195, 198–201

Vascular tissue and transport of proteins and nucleic acids through plasmodesmata, 43

Vectors viral plant transformation and, 299, 309

Vegetative apices phloem unloading and, 198–99 Vegetative propagation

Vegetative propagation plant transformation and, 319

Vegetative sinks jasmonates and, 367–69 Vegetative storage proteins jasmonates and, 355, 370–71, 373–74

Vegetative storage sinks terminal, 200–1 Vernalization

gibberellin biosynthesis and, 451 Verticillium dahliae

jasmonates and, 362 Vibrio harveyi cyanobacterial circadian rhythms and, 334, 337

Vicia faba
fluorescent microscopy of living plant cells and, 170–71
in vitro transcription systems
and, 394
starch granule synthesis and,
68–69

VidA gene chemical control of gene induction and, 92–93, 95 Viral cell-to-cell movement proteins

and transport of proteins and nucleic acids through plasmodesmata, 30, 32-36

Viral coat proteins

fluorescent microscopy of living plant cells and, 182

Viral vectors

replicating plant transformation and, 299, 309

vir gene

plant transformation and, 309 Viruses

fluorescent microscopy of living plant cells and, 166, 183 and transport of proteins and nucleic acids through plasmodesmata, 27-28, 46

Voodoo lily

alternative oxidase and, 708 VP16 activation domain chemical control of gene induction and, 101-2

Vsp genes jasmonates and, 366-67, 374 Vsps gene jasmonates and, 367, 371

W

waldmeister mutant angiosperm shoot apical meristem development and, 691

Water alternative oxidase and, 704 and CO2 and more efficient plants, 614, 616, 627, 629 and oxygen deficiency and root metabolism, 224 phloem unloading and, 206 pollen germination and, 463-64

Water channel proteins aquaporins and, 399-423 Waxes

pollen germination and, 465-66

Western blot analysis alternative oxidase and, 716-17 oxidative burst in disease re-

sistance and, 257 Wetlands and CO2 and more efficient

plants, 613, 618 and oxygen deficiency and root metabolism, 224, 226. 241

Wheat

and CO2 and more efficient

plants, 613, 618, 620, 626-28

disease resistance genes and, 602 gibberellin biosynthesis and,

437 in vitro transcription systems

and, 387, 391 phloem unloading and, 202, 204-5

pollen germination and, 468 and transport of proteins and nucleic acids through plas-

modesmata, 37 Wheat germ

in vitro transcription systems and, 387-89, 394 Wheat germ chromatin extract

in vitro transcription systems and, 389-90 White clover

oxidative burst in disease resistance and, 261 Whole cell extracts

in vitro transcription systems and, 388

Wound responses

alternative oxidase and, 706 chemical control of gene induction and, 89-90, 95-96 jasmonates and, 359-62, 364-65, 373-75

oxidative burst in disease resistance and, 265, 268 programmed cell death and, 540

wws mutant

angiosperm shoot apical meristem development and. 685, 691-92

X

Xa21 gene

disease resistance genes and, 587

oxidative burst in disease resistance and, 258 Xanthomonas campestris programmed cell death and,

Xanthomonas oryzae disease resistance genes and, 587

Xanthomonas sp. disease resistance genes and,

programmed cell death and,

Xenopus laevis oocytes aquaporins and, 399, 408, 411-13, 417

symbiotic membranes from legume nodules and, 515

Xenorhabdus luminescens cyanobacterial circadian rhythms and, 337

X receptor

chemical control of gene induction and, 104

Xylem

phloem unloading and, 207 and transport of proteins and nucleic acids through plasmodesmata, 43

Yariv's reagent

pollen germination and, 475

alternative oxidase and, 707, 720, 727

chemical control of gene induction and, 96 and CO2 and more efficient

plants, 620 in vitro transcription systems and, 384, 394 pollen germination and, 480

Z

Zea mays

auxin biosynthesis and, 54 gibberellin biosynthesis and, 435, 445

phloem unloading and, 199, 204 pollination regulation and, 554

Zein in vitro transcription systems

and, 384 Zinc fingers

ethylene response pathway in Arabidopsis and, 287 211 mutants

angiosperm shoot apical meristem development and,

Zm13 gene pollen germination and, 481 Zn

fluorescent microscopy of living plant cells and, 167 Zooxanthellea sp.

C2 cycle and, 23 ZWI gene

trichome development in Arabidopsis and, 157-58 Zygotic embryo

plant transformation and, 313